

To: Hemby, James[Hemby.James@epa.gov]
From: Environmental Law - Justia Weekly Opinion Summaries
Sent: Fri 2/23/2018 2:04:01 PM
Subject: Latest 2 Cases This Week: South Coast Air Quality Management District v. EPA (D.C. Cir.), Native Ecosystems Council v. Marten (9th Cir.)

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Environmental Law
February 23, 2018

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New on Verdict

Legal Analysis and Commentary

Pushback by Legislators Against Judges Illustrates the Overriding Importance of Legislative Elections
VIKRAM DAVID AMAR

Illinois Law dean and professor Vikram David Amar comments on the phenomenon by legislators on judges for alleged "activism." Amar argues that when the attacks on judicial independence move from seeking to limit jurisdiction or undo particular rulings to attempting to remove jurists themselves, although such attacks may not "seem" right, they are (perhaps oddly) legal. He points out that state constitutions operate not just in the larger context of morality and justice, but also in the larger context of the US Constitution. Ultimately, Amar explains, the most important decisions are made not by judges or even legislators, but by voters, when they elect people to the political branches.

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Environmental Law Opinions

South Coast Air Quality Management District v. EPA

Court: US Court of Appeals for the District of Columbia Circuit

Docket: 15-1115

Opinion Date: February 16, 2018

Judge: Sentelle

Areas of Law: Environmental Law, Government & Administrative Law

These consolidated petitions challenged the EPA's final rule entitled "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Review Requirements." The DC Circuit granted Environmental Petitioners' petition and vacated as to waiver of the statutory attainment deadlines associated with the 1997 NAAQS; removal of New Source Review and conformity controls from orphan nonattainment areas; grant of permission to states to move anti-backsliding requirements for orphan nonattainment areas to their list of contingency measures based on initial 2008 designations; waiver of the requirement that states adopt outstanding applicable requirements for the revoked 1997 NAAQS; waiver of the 42 U.S.C. 7505a(a) maintenance plan requirement for orphan nonattainment areas; creation of the "redesignation substitute"; creation of an alternative baseline year option; elimination of transportation conformity in orphan maintenance areas; and waiver of the requirement for a second 10-year maintenance plan for orphan maintenance areas. The court denied Environmental Petitioners' petition in all other respects.

Read Opinion

Are you a lawyer? **Annotate this case.**

Native Ecosystems Council v. Marten

Court: US Court of Appeals for the Ninth Circuit

Docket: 16-35571

Opinion Date: February 22, 2018

Judge: William A. Fletcher

Areas of Law: Environmental Law, Government & Administrative Law

The Ninth Circuit affirmed the district court's grant of the Forest Service's motion to dissolve an injunction enjoining the Lonesome Wood 2 Project. The Project was designed to reduce the threat of wildfire in a populated area of the Gallatin National Forest in Montana. The panel declined to overrule the Forest Service's determination that a thesis outlining important predictors for overall lynx reproductive success did not require the Forest Service to reevaluate its approval of the project. The panel rejected the argument that the Forest Service failed to comply with the obligation to ensure species viability and that the Forest Service failed to comply with its Gallatin Forest Plan

obligation to monitor population trends for two management indicator species. Finally, the panel held that the Forest Service took a "hard look" at the project and did not act arbitrarily or capriciously.

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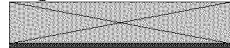
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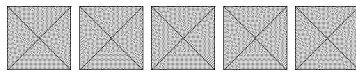


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From: Administrative Law - Justia Weekly Opinion Summaries
Sent: Fri 2/23/2018 2:04:34 PM
Subject: Latest 12 Cases This Week: South Coast Air Quality Management District v. EPA (D.C. Cir.), Stolz v. FCC (D.C. Cir.), Woodmen of the World v. Nebra ...

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Government & Administrative Law
February 23, 2018

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John Doe G v. Dept. of Corr.

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Environmental Law, Government & Administrative Law

US Court of Appeals for the Ninth Circuit
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New on Verdict

Legal Analysis and Commentary

Pushback by Legislators Against Judges Illustrates the Overriding Importance of Legislative Elections
VIKRAM DAVID AMAR

Illinois Law dean and professor Vikram David Amar comments on the phenomenon by legislators on judges for alleged "activism." Amar argues that when the attacks on judicial independence move from seeking to limit jurisdiction or undo particular rulings to attempting to remove jurists themselves, although such attacks may not "seem" right, they are (perhaps oddly) legal. He points out that state constitutions operate not just in

the larger context of morality and justice, but also in the larger context of the US Constitution. Ultimately, Amar explains, the most important decisions are made not by judges or even legislators, but by voters, when they elect people to the political branches.

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Government & Administrative Law Opinions

South Coast Air Quality Management District v. EPA

Court: US Court of Appeals for the District of Columbia Circuit

Docket: 15-1115

Opinion Date: February 16, 2018

Judge: Sentelle

Areas of Law: Environmental Law, Government & Administrative Law

These consolidated petitions challenged the EPA's final rule entitled "Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Review Requirements." The DC Circuit granted Environmental Petitioners' petition and vacated as to waiver of the statutory attainment deadlines associated with the 1997 NAAQS; removal of New Source Review and conformity controls from orphan nonattainment areas; grant of permission to states to move anti-backsliding requirements for orphan nonattainment areas to their list of contingency measures based on initial 2008 designations; waiver of the requirement that states adopt outstanding applicable requirements for the revoked 1997 NAAQS; waiver of the 42 U.S.C. 7505a(a) maintenance plan requirement for orphan nonattainment areas; creation of the "redesignation substitute"; creation of an alternative baseline year option; elimination of transportation conformity in orphan maintenance areas; and waiver of the requirement for a second 10-year maintenance plan for orphan maintenance areas. The court denied Environmental Petitioners' petition in all other respects.

[Read Opinion](#)

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Stolz v. FCC

Court: US Court of Appeals for the District of Columbia Circuit

Docket: 16-1248

Opinion Date: February 16, 2018

Judge: Patricia Ann Millett

Areas of Law: Communications Law, Government & Administrative Law

This case arose from an agreement the parties entered into for the sale of appellant's radio station to Entercom upon approval by the FCC. The DC Circuit denied appellant's appeal and dismissed as moot his central claim challenging Entercom's legal eligibility

to acquire the station. The court held that appellant's challenge to the FCC's application of the pre-2002 Order's local-market definition was moot and his remaining challenges to the FCC decision lacked merit. Accordingly, the court dismissed in part and denied in part.

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Are you a lawyer? **Annotate this case.**

Woodmen of the World v. Nebraska Department of Revenue

Court: Nebraska Supreme Court

Citation: 299 Neb. 43

Opinion Date: February 16, 2018

Judge: Stacy

Areas of Law: Government & Administrative Law, Tax Law

The legislature has not enacted any statute that exempts fraternal benefit societies from paying sales and use tax. Woodmen of the World Life Insurance Society, a Nebraska fraternal benefit society, requested an exemption from sales and use taxes from the Nebraska Department of Revenue (NDOR) and sought a refund of more than \$2 million in sales and use taxes previously paid. NDOR denied Woodmen's application. The Tax Commissioner upheld the determination. The district court affirmed. The Supreme Court affirmed, holding (1) neither Neb. Rev. Stat. 77-2704.12(1) nor Neb. Rev. Stat. 44-1095 exempted Woodmen from sales and use tax; (2) Woodmen was not denied due process before the Tax Commissioner; and (3) the hearing officer did not abuse her discretion in excluding certain expert testimony.

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Are you a lawyer? **Annotate this case.**

Sauro v. Lombardi

Court: Rhode Island Supreme Court

Docket: 16-170

Opinion Date: February 20, 2018

Judge: Maureen McKenna Goldberg

Areas of Law: Labor & Employment Law, Government & Administrative Law

The trial justice erred by requiring Defendants to continue to provide accidental disability pension benefits to Plaintiff and to place him on a waiting list to return to his position at the Providence Fire Department under section 17-189(8)(a) of the Providence Code of Ordinances. Rejecting the claim of Defendants - the City of Providence and the Retirement Board of the Employees Retirement System of the City of Providence - that Plaintiff could not return to work after an injury due to his other illnesses, the trial justice concluded that section 17-189(8)(a) required the Board to place Plaintiff on a waiting list for an opening in the fire department and, until Plaintiff was reappointed, and the City to continue to pay him accidental disability pension benefits. The Supreme Court reversed, holding that, under the clear and unambiguous language of the ordinance, the Board

could not properly have placed Plaintiff on a list of candidates who were prepared to return to work, and the City was not required to pay indefinite accidental disability pension benefits to Plaintiff - a person who was no longer accidentally disabled but was otherwise unable to return to duty.

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Are you a lawyer? **Annotate this case.**

Byrd v. Tennessee Wine & Spirits Retailers Association

Court: US Court of Appeals for the Sixth Circuit

Docket: 17-5552

Opinion Date: February 21, 2018

Judge: Karen Nelson Moore

Areas of Law: Constitutional Law, Government & Administrative Law

The Tennessee Alcoholic Beverage Commission issues separate classes of licenses to manufacturers and distillers, wholesalers, and liquor retailers, Tenn. Code 57-3-201. To obtain a license, an individual must have “been a bona fide resident of [Tennessee] during the two-year period immediately preceding the date upon which application is made.” The statute imposes a 10-year residency requirement to renew the license. A corporation cannot receive a license “if any officer, director or stockholder owning any capital stock in the corporation, would be ineligible to receive a retailer’s license for any reason specified” and all capital stock must be owned by individuals who meet the same residency requirements. Anticipating litigation, the state sought a declaratory judgment construing the constitutionality of the durational-residency requirements. The district court found the requirements facially discriminatory; held that state regulations of the retailer and wholesaler tiers are not immune from Commerce Clause scrutiny just because they do not discriminate against out-of-state liquor; concluded that nondiscriminatory alternatives could achieve the durational-residency requirements’ purposes—citizen health and alcohol regulation; and found that the requirements violate the dormant Commerce Clause. The Sixth Circuit affirmed and found the unconstitutional provisions severable.

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Are you a lawyer? **Annotate this case.**

Cagey v. PennDOT

Court: Supreme Court of Pennsylvania

Docket: 36 WAP 2016

Opinion Date: February 21, 2018

Judge: Donohue

Areas of Law: Government & Administrative Law, Personal Injury

The Pennsylvania Supreme Court granted allocatur to determine whether the Pennsylvania Department of Transportation (“PennDOT”) was liable for injuries caused by negligently and dangerously designed guardrails erected on Commonwealth real

estate. Specifically, the Court found the issue reduced to whether the Commonwealth owed a duty of care when PennDOT installed a guardrail alleged to be dangerous. Pursuant to the plain language of the Sovereign Immunity Act, 42 Pa.C.S. sections 8521-8528, the Court found the Pennsylvania General Assembly waived PennDOT's immunity as a bar to damages caused by dangerous guardrails affixed to Commonwealth real estate. *Dean v. Dep't of Transp.*, 751 A.2d 1130 (Pa. 2000) did not control under the facts presented here. The Court reversed the decision of the Commonwealth Court and remanded for further proceedings.

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Are you a lawyer? **Annotate this case.**

Planned Parenthood v. Andersen

Court: US Court of Appeals for the Tenth Circuit

Docket: 16-3249

Opinion Date: February 21, 2018

Judge: Gregory Alan Phillips

Areas of Law: Civil Procedure, Civil Rights, Government Contracts, Government & Administrative Law, Health Law

In 2016, Kansas sent notices of decisions to terminate its Medicaid contracts with two Planned Parenthood affiliates, Planned Parenthood of Kansas and Mid-Missouri ("PPGP"), and Planned Parenthood of the St. Louis Region ("PPSLR"). The notices cited concerns about the level of PPGP's cooperation in solid-waste inspections, both Providers' billing practices, and an anti-abortion group's allegations that Planned Parenthood of America ("PPFA") executives had been video-recorded negotiating the sale of fetal tissue and body parts. Together, the Providers and three individual Jane Does ("the Patients") immediately sued Susan Mosier, Secretary of the Kansas Department of Health and Environment ("KDHE"), under 42 U.S.C. 1983, alleging violations of 42 U.S.C. 1396a(a)(23) and the Equal Protection Clause of the Fourteenth Amendment. The Plaintiffs sought a preliminary injunction enjoining Kansas from terminating the Providers from the state's Medicaid program. "States may not terminate providers from their Medicaid program for any reason they see fit, especially when that reason is unrelated to the provider's competence and the quality of the healthcare it provides." The Tenth Circuit joined four of five circuits that addressed this same provision and affirmed the district court's injunction prohibiting Kansas from terminating its Medicaid contract with PPGP. But the Court vacated the district court's injunction as it pertained to PPSLR, remanding for further proceedings on that issue, because Plaintiffs failed to establish standing to challenge that termination. But on this record, the Court could not determine whether PPSLR itself could establish standing, an issue the district court declined to decide but now must decide on remand.

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Are you a lawyer? **Annotate this case.**

Mississippi County, Arkansas v. City of Blytheville

Court: Arkansas Supreme Court

Citation: 2018 Ark. 40

Opinion Date: February 22, 2018

Judge: Courtney Hudson Goodson

Areas of Law: Government & Administrative Law

The Supreme Court reversed the circuit court's order granting summary judgment for the City of Blytheville and against Mississippi County. The court held (1) the circuit court erred by defining "prisoners of municipalities" as only those detainees who are charged with violating a municipal ordinance because the term includes those offenders who are arrested by municipal law enforcement officers and delivered to the county jail for incarceration, from the point of intake until they are charged, sentenced, and released; and (2) the circuit court erred by applying an offset on the amount of taxes paid under the 1995 "exclusive jail tax" that support only the County jail by residents of the City to the calculation of "reasonable expenses" under Ark. Code Ann. 12-41-506(a)(2).

Read Opinion

Are you a lawyer? **Annotate this case.**

Olson v. Town of Yarmouth

Court: Maine Supreme Judicial Court

Citation: 2018 ME 27

Opinion Date: February 22, 2018

Judge: Humphrey

Areas of Law: Government & Administrative Law

The Supreme Judicial Court affirmed the judgment of the superior court affirming the Town of Yarmouth Planning Board's approval of a site plan application by Verizon Wireless to install wireless communication equipment on a tower and site owned by the Yarmouth Water District, holding that the Board did not err by concluding that Verizon's application complied with the relevant provisions of Yarmouth's Zoning Ordinance. Contrary to Appellants' contentions on appeal, the Supreme Court held (1) the Yarmouth Water District site was not subject to a presumption of unsuitability because the relevant article of the Ordinance applies only to new-tower-construction applicants; and (2) substantial evidence in the record supported the Board's findings that Verizon presented sufficient evidence that it investigated other technically feasible sites and that none was available.

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Are you a lawyer? **Annotate this case.**

Osburn v. Department of Alcoholic Beverage Control

Court: Supreme Court of Virginia

Docket: 161777

Opinion Date: February 22, 2018

Judge: Donald W. Lemons

Areas of Law: Civil Rights, Constitutional Law, Labor & Employment Law, Government & Administrative Law

In this appeal from a state employee grievance proceeding, a hearing officer's decision upholding the termination of Nathan Osburn, a special agent with the Virginia Department of Alcoholic Beverage Control (ABC), was not contrary to law. ABC terminated Osburn's employment after receiving a complaint that Osburn rummaged, without permission, through the business records of a business owner who had applied for a retail alcohol license. A hearing officer upheld Osburn's termination, concluding that the warrantless search was not permissible, resulting in a violation of the applicant's constitutional rights. The circuit court upheld the hearing officer's determination. The court of appeals affirmed the circuit court's determination that Osburn violated the Fourth Amendment. The Supreme Court affirmed, holding that Osburn's warrantless inspection of the office of the applicant's business was not permissible under the highly regulated industry exception to the warrant requirement and that the business owner did not consent to Osburn's warrantless search of the office.

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Are you a lawyer? **Annotate this case.**

John Doe G v. Dept. of Corr.

Court: Washington Supreme Court

Docket: 94203-0

Opinion Date: February 22, 2018

Judge: Barbara Madsen

Areas of Law: Criminal Law, Government & Administrative Law

Pro se petitioner Donna Zink and the Washington Department of Corrections (DOC) sought reversal of a published Court of Appeals decision, which affirmed the trial court's summary judgment ruling in favor of respondents, John Does G, I, and J (John Does). This case presented two issues: (1) whether special sex offender sentencing alternative (SSOSA) evaluations were exempt from disclosure under the Public Records Act (PRA), chapter 42.56 ROW, because they contained "health care information;" and (2) whether pseudonymous litigation was proper in this action. In July 2014, Zink sent a PRA request to the DOC for all SSOSA evaluations "held, maintained, in the possession of or owned" by the DOC since 1990. The DOC responded to Zink, intending to release the SSOSA evaluations on an installment basis. The DOC explained that it would review the SSOSA evaluations and make appropriate redactions as required under the PRA before disclosure. The John Does obtained a temporary restraining order (TRO), which prevented the DOC from releasing any SSOSA evaluations of level I sex offenders. Upon the TRO's expiration, the trial court granted the John Does a preliminary injunction. The Washington Supreme Court held the SSOSA evaluations did not contain "health care information" because they were forensic examinations done for the purpose of aiding a court in sentencing a sex offender. The Court also held that pseudonymous litigation was improper in this action because the trial court did not adhere to the requirements of article 1, section 10 of the Washington Constitution and General Rule

(OR) 15. Accordingly, the Supreme Court reversed the Court of Appeals.

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Are you a lawyer? **Annotate this case.**

Native Ecosystems Council v. Marten

Court: US Court of Appeals for the Ninth Circuit

Docket: 16-35571

Opinion Date: February 22, 2018

Judge: William A. Fletcher

Areas of Law: Environmental Law, Government & Administrative Law

The Ninth Circuit affirmed the district court's grant of the Forest Service's motion to dissolve an injunction enjoining the Lonesome Wood 2 Project. The Project was designed to reduce the threat of wildfire in a populated area of the Gallatin National Forest in Montana. The panel declined to overrule the Forest Service's determination that a thesis outlining important predictors for overall lynx reproductive success did not require the Forest Service to reevaluate its approval of the project. The panel rejected the argument that the Forest Service failed to comply with the obligation to ensure species viability and that the Forest Service failed to comply with its Gallatin Forest Plan obligation to monitor population trends for two management indicator species. Finally, the panel held that the Forest Service took a "hard look" at the project and did not act arbitrarily or capriciously.

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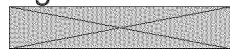
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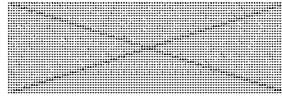
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From: epa@lists.4cleanair.org
Sent: Fri 12/29/2017 6:30:11 PM
Subject: The Washington Update



Friends,

Cowboy wisdom holds that you should say more, with fewer words. We don't have a lot of stories this week, but the five we've got are Big. Read on to get the latest clean air stories, including:

- 2015 Ozone NAAQS "120 Day" Letters Issued by EPA
- Third Round of Designations Released Under 2010 SO₂ NAAQS
- EPA Issues ANPRM on Clean Power Plan Replacement Rule
- Eight States Sue To Expand Ozone Transport Region
- EPA Denies Petition for Inclusion of CAFOs Under CAA Sect. 111

Plus, what's on tap for next week. Happy New Year!

Download it here:

<http://www.4cleanair.org/sites/default/files/files/documents/122917wklyupdate.pdf>

Have a great weekend – see you in 2018!

My best, Miles

Miles Keogh

Executive Director

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From: epa@lists.4cleanair.org
Sent: Fri 12/22/2017 4:57:42 PM
Subject: The Washington Update



Friends,

I mean it when I say that working with y'all is the best gift I could ask for this year. Check out the goodies the NACAA team got you from this week's clean air news, including:

- NACAA releases its new Permit Streamlining Principles & Recommendations,
- EPA's issues ANPR for the replacement of the Clean Power Plan,
- U.S. Court Orders EPA to take action on the delayed 2015 Ozone NAAQS designations,
- Congress passes stopgap federal funding until January 2018,
- Senate Democrats object to riders in 2018 appropriations,
- Steel plant to pay penalty for Clean Air Act violations in Pennsylvania,
- "Climate Change" dropped from threats in National Security Assessment,
- States sue BLM over Methane Rule suspension,
- Georgia PSC votes to continue with nuclear unit construction, and
- Bakers sue EPA over air toxics standards.

Plus we've got what's on the calendar for next week. Whether you celebrate Christmas, Hanukkah, the solstice, Kwanzaa, or you're just gearing up for some time off, here's a wish for happy days in the week ahead!

Download it here:

<http://www.4cleanair.org/sites/default/files/Documents/122217wklyupdate.pdf>

Have a great weekend and Happy Holidays!

My best, Miles

Miles Keogh

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From: epa@lists.4cleanair.org
Sent: Fri 1/12/2018 9:41:54 PM
Subject: The Washington Update



Friends, in the course of the week here in DC we've gone from epic "bomb cyclone" cold (or as Montana calls it, "January") to short-sleeve-shirt weather (or as Pima County AZ calls it, "January"). We've had a rollercoaster week for clean air news too, including:

- Senators' recommendation that EPA rescind the "Once In, Always In" policy,
- FERC's rejection of DOE's coal and nuclear resilience payment proposal,
- SCOTUS's denial of petitions to review two CAA cases,
- Washington Governor Inslee's proposed statewide carbon tax,
- EPA's annual reports on light-duty vehicle fuel economy and GHG emissions,
- A state-local coalition's call for Administrator Pruitt to withdraw the proposed CPP repeal and recuse himself,
- NOAA's findings that 2017 was the nation's most expensive weather and climate disaster year and third warmest year on record,
- EPA's status report to the court on its review of the 2015 ozone NAAQS,
- The re-nomination of administrative and judicial appointments not confirmed in 2017 including nominees for two key environmental posts,
- EPA's adjustment of monetary civil penalties,
- Extension of the comment period for the CPP repeal proposal and announcement of additional public hearing dates,
- Publication of the third round of SO2 area designations, and
- Launch of a new EPA website on deregulation activities.

Don't forget to take a look at what's on tap for next week!

Download it here:

<http://www.4cleanair.org/sites/default/files/Documents/011218wklyupdate.pdf>

Have a great weekend! (FYI, the NACAA offices will be closed Monday to observe Martin Luther King, Jr. Day.)

My best, Miles

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To: Hemby, James[Hemby.James@epa.gov]
From: Journal of Geophysical Research: Atmospheres
Sent: Thur 2/16/2017 10:44:02 PM
Subject: JGR: Atmospheres Content Alert: 122, 2 (27 January 2017)

Journal of Geophysical Research: Atmospheres

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Issue Information

Issue Information (pages 583–585)

Version of Record online: 16 FEB 2017 | DOI: 10.1002/jgrd.53213

Research Articles

Climate and Dynamics

Bidirectional leader development in a preexisting channel as observed in rocket-triggered lightning flashes (pages 586–599)

Xiushu Qie, Yunjiao Pu, Ruben Jiang, Zhuling Sun, Mingyuan Liu, Hongbo Zhang, Xun Li, Gaopeng Lu and Ye Tian

Version of Record online: 17 JAN 2017 | DOI: 10.1002/2016JD025224

Key Points

- Bidirectional leader in a preexisting discharge channel was documented in rocket-triggered lightning flashes
- The positive end moving upward along the decayed dart leader path started earlier and propagated twice as fast as the negative end
- The bidirectional leader can be regarded as a recoil leader but with polarity being contrary to the traditional recoil leader

Impact of moisture source variation on decadal-scale changes of precipitation in North China from 1951 to 2010 (pages 600–613)

Zhihong Jiang, Shuai Jiang, Yi Shi, Zhengyu Liu, Wei Li and Laurent Li

Version of Record online: 18 JAN 2017 | DOI: 10.1002/2016JD025795

Key Points

- Moisture transport is modeled using 60 years of backward trajectories
- The decadal variation of precipitation can be attributed to variation of moisture source areas
- The Bay of Bengal and the South China Sea are major sources for rainfall in North China

Atmospheric moisture budget and its regulation on the variability of summer precipitation over the Tibetan Plateau (pages 614–630)

Ziqian Wang, Anmin Duan, Song Yang and Kalim Ullah

Version of Record online: 18 JAN 2017 | DOI: 10.1002/2016JD025515

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V: Aesthetics of Precipitation from 1970-2017. DOI: 10.1002/2016.JG25593

into numerical weather prediction models

Version 3.0.0 of the model is available at <https://doi.org/10.26434/chemrxiv-2024-5042> and is a significantly improved parametrization for the task of view factor

Version 10.0 of the software was used for all analyses. The model was run for 100,000 iterations, and the first 10,000 were discarded as burn-in. The mean and standard deviation of the posterior distribution were calculated for each parameter.

[illegible]

electron quiet time pulses as a guide for ionospheric absorption have large and insignificant errors (page 7098-7099) of surface electromagnetic waves and linearized mountain waves in a

geometrical spreading

• The model can be used to retrieve the ionosphere feature from lightning spheres

S. Viradachandran, M. D. Deshpande, R. Nigam, S. Ghosh, P. Vignani, A. K. Choudhary, B. V. Krishna Murthy and S. Kumar

Key Points

The JTJ boundaries are defined based on static stability criteria

subtropical jet with temperature and wind layers

Key Points **Evaporation of the MJO** **Simultaneous evapotranspiration on clear-sky days using the**
conservative reference evaporation of fractional method (MSE1) fit MJO variable surface resistances at

bioRxiv preprint doi: <https://doi.org/10.1101/2018.04.03.228159>; this version posted April 3, 2018. The copyright holder for this preprint (which was not certified by peer review) is the author/funder, who has granted bioRxiv a license to display the preprint in perpetuity. It is made available under aCC-BY-NC-ND 4.0 International license.

Mar 10th 2021, 11:00 AM. Francesco, David, Patrice, Gabriel, Massimo, and I were hosted in Mian Chin, the fixed cost variables. Mateo Esposito was also present. The ET unscaling

temperature profile (pages 1006–1024)
Shamir, G., and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

- The motion manners of falling snow grains are directly affected by the orographic effects and the boundary layer conditions and precipitation properties in the Southern Hemisphere. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Gerber, D. E., and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Key Points: The distribution and properties of cloud droplets influence the spectral radiance (pages 1033–1041)
Phillips, G. J., and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

- Warm clouds in winter tend to have much lower cloud droplet number concentration than in summer. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Key Points: The distribution and properties of cloud droplets influence the spectral radiance (pages 1033–1041)
Phillips, G. J., and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

- 11.2% of lightning flashes detected from space contain continuing current. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Key Points: The distribution and properties of cloud droplets influence the spectral radiance (pages 1033–1041)
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R. G. Ziemba, D. H. Phillips, J. J. O'Brien, and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

Key Points: Measurements of water uptake by black carbon-containing aerosol in wildfire plumes (pages 1086–1097)

Anne Spengler, John H. Seinfeld, and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

Key Points: The low bias of CALIPSO's column aerosol optical depth due to undetected aerosol layers (pages 1098–1113)

Manojkumar, A., and J. J. O'Brien, 2017: The effect of cloud droplet growth on the temperature profile. *J. Geophys. Res.*, 122, 10,000–10,010, doi:10.1002/jgrd.12570.

Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

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Version of Record: 10 January 2017 | DOI: 10.1002/jgrd.12570

Key Points: The low bias of CALIPSO's column aerosol optical depth due to undetected aerosol layers (pages 1098–1113)

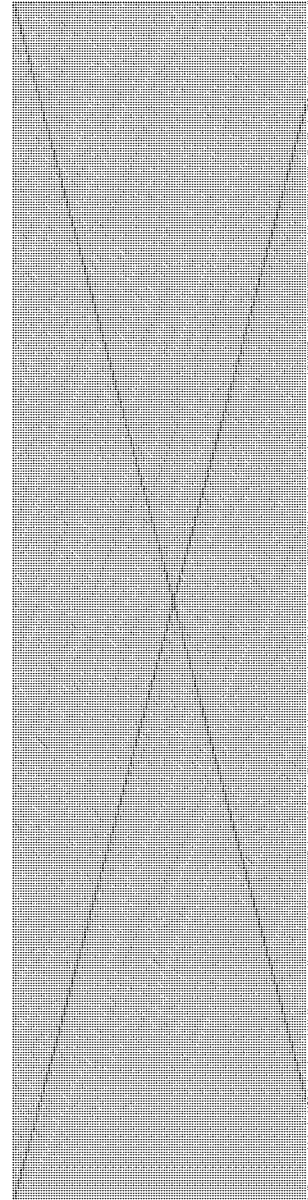
- Liquid water path enhancement upstream of air mass arrival at the Azores can account for low concentrations via coalescence scavenging

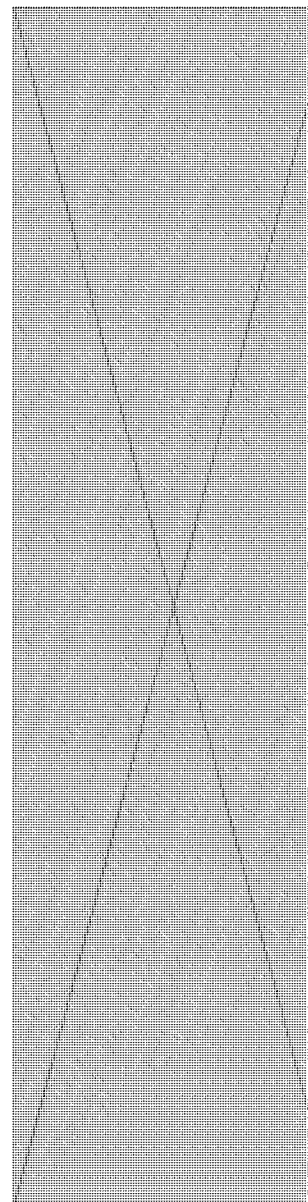
To find the link, please go to [this link](#) or to the end of the attached file to find the link.

close Standard for leaders in the 6005w638 in U.S.
Chirak Kapp, Glibrie Ditz and Muts100 Ng Hakeh
Version of Residuo is line: 2214462007 of Daria 16102/2016JD025445
• Dry deposition is primarily controlled by dust concentration
Key Points

- A terrestrial gamma-ray flash between 10 and 2000 neutrons per ms and m² is possibly detectable at 0 km, 6 km, or 500 km altitude
- Combining the feedback mechanism with the electric fields of lightning leaders can explain beams of leptons and photons above 40 MeV
- The cross-section area of neutron beams between 350 keV and 20 MeV initiated at 4 km and 16 km altitude extends to several km²

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Accepted Articles (Accepted, unedited articles published online and citable. The final edited and typeset version of record will appear in future.)

Early View (Online Version of Record published before inclusion in an issue)

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Research Articles

Composition and Chemistry

Assessment of an atmospheric transport model for annual inverse estimates of California greenhouse gas emissions

Justin E. Bagley, Seongeun Jeong, Xinguang Cui, Sally Newman, Jingsong Zhang, Chad Priest, Mixtli Campos-Pineda, Arlyn E. Andrews, Laura Bianco, Matthew Lloyd, Neil Lareau, Craig Clements and Marc L. Fischer
Accepted manuscript online: 19 JAN 2017 08:15AM EST | DOI: 10.1002/2016JD025361

Key Points

- Meteorological observations used to select site-specific WRF model schemes
- CO measurements compared with WRF-STILT model predictions
- Model biases and random errors estimated for measurements sites

Climate and Dynamics

Estimation of land surface evaporation using a generalized nonlinear complementary relationship

Lu Zhang, Lei Cheng and Wilfried Brutsaert
Accepted manuscript online: 19 JAN 2017 08:15AM EST | DOI: 10.1002/2016JD025936

Key Points

- The generalized nonlinear complementary relationship is accurate in predicting daily evaporation from routine meteorological data.
- The apparent potential evaporation required in the method can be estimated from Class A evaporation pan or from the Penman equation.
- The optimized model parameter values are fairly conservative and well within the range of reported values in the literature.

Evaluation of the COSMO-CLM high-resolution climate simulations over West Africa

Diarra Dieng, Gerhard Smiatek, Jan Bliefernicht, Dominikus Heinzeller, A. Sarr, A. T.

Gaye and Harald Kunstmann

Accepted manuscript online: 19 JAN 2017 08:15AM EST | DOI:

10.1002/2016JD025457

Key Points

- High resolution regional climate modeling over West Africa
- Cold bias in the coastal zone and in the Sahel
- Dry bias in the coastal zone and wet bias in the Sahel

Climate and Dynamics

Assessment of Noah Land Surface Model with Various Runoff Parameterizations over a Tibetan River

Donghai Zheng, Rogier Van der Velde, Zhongbo Su, Jun Wen and Xin Wang

Accepted manuscript online: 19 JAN 2017 07:01AM EST | DOI:

10.1002/2016JD025572

Key Points Topographic Smoothing on the Simulation of Winter Precipitation in High Mountain Asia

Forest Runoff parameterization over the seasonally frozen Yellow River source region and the seasonally frozen Yellow River source region

Accepted manuscript online: 19 JAN 2017 07:01AM EST | DOI:

10.1002/2016JD025572

- Surface water and energy budget simulations are insensitive to the selected

Key Points Detailed analysis of two case studies

Serge Soula, Janusz Mlynarczyk, Martin Füllekrug, Nicolau Pineda, Jean-François

Georgios, and topographic effects on the mountainous region of the atmosphere

Accepted manuscript online: 19 JAN 2017 06:50AM EST | DOI:

10.1002/2016JD025572

distributions in smoothed topography experiments are biased

relative to simulation with more realistic topography

Key Points Smoothed topography simulation biases extreme events toward enhanced

dynamics and thermodynamics

- dancing sprites repeat the timing and location of successive parent strokes
- Time-delayed sprites correspond to current surges during the continuing current following the lightning strokes
- Delayed sprites can occur after an initial sprite and at lower altitude

Vertical propagation of large amplitude mountain waves in the vicinity of the polar night jet

Benedikt Ehard, Bernd Kaifler, Andreas Dörnbrack, Peter Preusse, Stephen Eckermann, Martina Bramberger, Sonja Gisinger, Natalie Kaifler, Ben Liley, Johannes Wagner and Markus Rapp

Accepted manuscript online: 16 JAN 2017 08:30AM EST | DOI: 10.1002/2016JD025621

Key Points of a Pinatubo-Size Volcanic Eruption on ENSO

Evgeniya Predybaylo, Georgiy L. Stenchikov, Andrew T. Wittenberg and Fanrong

Zeng Analysis of a large-amplitude mountain wave event above New Zealand

Accepted manuscript online: 16 JAN 2017 08:05AM EST | DOI:

10.1002/2016JD025796

- Mountain waves are refracted in the upper stratosphere and propagate towards

Key Points Polar night jet

- In our simulations the likelihood of El Niño-like responses almost doubles after a Pinatubo-size eruption
- The Central Pacific El Niños develop much stronger warming responses to volcanic forcing than the Eastern Pacific El Niños
- El Niño responses are highly sensitive to the seasonal timing of a Pinatubo-size eruption

Composition and Chemistry

A Twentieth Century Major Soluble Ion Record of Dust and Anthropogenic Pollutants from Inilchek Glacier, Tien Shan

B. Grigholm, P. A. Mayewski, V. Aizen, K. Kreutz, E. Aizen, S. Kang, K. A. Maasch and S. B. Sneed

Accepted manuscript online: 15 JAN 2017 06:45PM EST | DOI:
10.1002/2016JD025407

Key Points

- First high-resolution multi-decadal (1908-1995) major soluble ion record from Inilchek glacier, Tien Shan, Kyrgyzstan.
- Highest Ca²⁺ concentrations occur between 1950s-1970s, with declining trends to the 1990s, reflecting decreases in dust storm activity.
- Non-crustal contribution estimates of NO₃⁻, K⁺, SO₄²⁻, and Cl⁻ suggest discernable anthropogenic inputs began between the 1950s-1970s.

A 1-D variational retrieval of temperature, humidity, and liquid cloud properties: performance under idealized and real conditions

K. Ebell, U. Löhnert, E. Päsche, E. Orlandi, J. H. Schween and S. Crewell

Accepted manuscript online: 14 JAN 2017 05:10PM EST | DOI:
10.1002/2016JD025945

Key Points
Constructive Cloud Characterizations from both Broadband Imager and Hyperspectral Infrared Sounder Measurements

Yufan Aiguo, L. P. Wenjiao, T. Schmitz, V. Schmitz, S. Tang, P. Gao, and Y. Wang, Li

Accepted manuscript online: 14 JAN 2017 05:05PM EST | DOI:
10.1002/2016JD025408

Key Points
Constructive Cloud Characterizations from both Broadband Imager and Hyperspectral Infrared Sounder Measurements

Yufan Aiguo, L. P. Wenjiao, T. Schmitz, V. Schmitz, S. Tang, P. Gao, and Y. Wang, Li

Accepted manuscript online: 14 JAN 2017 05:05PM EST | DOI:
10.1002/2016JD025408

- Relationship between the DCC top height and infrared BTD

Key Points
Vertical geolocation of atmospheric profiles from GNSS radio occultation

Barbara A. Schmitz, R. Schmitz, A. Schmitz, S. Schmitz, G. Schmitz, K. Schmitz, M. Schmitz, and S. Schmitz

Accepted manuscript online: 14 JAN 2017 05:05PM EST | DOI:
10.1002/2016JD025902

- Some non-local, tropical climate information may also be reconstructable

Key Points
from ice-core isotopes

- Refractometric observations from RO provide independent information on altitude and pressure
- We estimate errors of RO-derived temperature, pressure, and potential temperature and provide an empirical error model
- Example applications on tropopause and wind fields clearly reveal the power of vertical geolocation from RO measurements

Climate and Dynamics

Ground Validation of GPM IMERG and TRMM 3B42V7 Rainfall Products over Southern Tibetan Plateau Based on a High-Density Rain-Gauge Network

Ran Xu, Fuqiang Tian, Long Yang, Hongchang Hu, Hui Lu and Aizhong Hou

Accepted manuscript online: 14 JAN 2017 07:55AM EST | DOI:
10.1002/2016JD025418

Key Points

- GPM IMERG and TRMM 3B42V7 are validated with dense rain gauges over southern Tibetan Plateau Region
- Performance of GPM and TRMM strongly depends on topography and rainfall intensity
- The accuracy of GPM needs further improvement over regions with high elevation

Tracking nitrous oxide emission processes at a suburban site with semi-continuous, in-situ measurements of isotopic composition

Eliza Harris, Stephan Henne, Christoph Hüglin, Christoph Zellweger, Béla Tuzson, Erkan Ibrahim, Lukas Emmenegger and Joachim Mohn

Accepted manuscript online: 13 JAN 2017 10:00AM EST | DOI:
10.1002/2016JD025906

Key Points

- P-QCLAS is demonstrated to be a well-suited technique for high precision, long-term, online monitoring of N₂O stable isotopic composition
- N₂O sources were isotopically lighter than tropospheric background air, but showed unexpectedly high variability
- δ¹⁸O may be a useful tracer for discerning urban/industry vs. agricultural N₂O sources

Climate and Dynamics

Key Processes for the Eastward Propagation of the Madden-Julian Oscillation Based on Multi-model Simulations

Xianan Jiang

Accepted manuscript online: 11 JAN 2017 04:30PM EST | DOI:
10.1002/2016JD025955

Key Points

- Consistent with the moisture model theory, the moist static energy (MSE) can be used as a good proxy for MJO convection.
- The vertically integrated horizontal MSE advection plays a critical role for eastward propagation of the MJO.
- Faithful representation of seasonal mean MSE and MJO winds in the lower-troposphere is key for realistic simulations of MJO propagation.

Present-day irrigation mitigates heat extremes

Wim Thiery, Edouard L. Davin, David M. Lawrence, Annette L. Hirsch, Mathias Hauser and Sonia I. Seneviratne

Accepted manuscript online: 11 JAN 2017 02:35PM EST | DOI:
10.1002/2016JD025740

Remote vorticity regimes over East Asia during winter

Wenyu Huang, Ruyan Chen, Bin Wang, Jonathon S. Wright, Zifan Yang and Wenqiang Wang

Accepted manuscript online: 11 JAN 2017 02:25PM EST | DOI:
10.1002/2016JD025898

Key Points: Analysis of spatial and temporal variations in atmospheric electric fields from a regional array of field mills

G. M. L'Heureux, R. Thiery and W. Dierling

Accepted manuscript online: 11 JAN 2017 02:10PM EST | DOI:
10.1002/2016JD025944

Key Points: While warm and neutral regimes often transit into cold regimes, cold regimes rarely transit into warm or neutral regimes.

- A strong diurnal and relatively weak annual variation are seen in the 18-year

- electric field dataset
- Space charge near the coast is advected by wind and detected over the regional array of field mills
- Near-surface electric fields are modified by cloud conductivity altering the local column resistance

Climate and Dynamics

Temporal upscaling of instantaneous evapotranspiration on clear-sky days using the constant reference evaporative fraction method with fixed or variable surface resistances at two cropland sites

Ronglin Tang, Zhao-Liang Li, Xiaomin Sun and Yuyun Bi

Accepted manuscript online: 10 JAN 2017 09:25PM EST | DOI: 10.1002/2016JD025975

Key Points

- The constant reference evaporative fraction upscaling method was tested
- Fixed and variable surface resistances were compared in the ET upscaling
- Analysis was made over different assumed satellite overpass times

Composition and Chemistry

Contributions of Wood Smoke and Vehicle Emissions to Ambient Concentrations of VOCs and PM during the Yakima Wintertime Nitrate Study

Graham VanderSchelden, Benjamin de Foy, Courtney Herring, Susan Kaspari, Tim VanReken and Bertram Jobson

Accepted manuscript online: 10 JAN 2017 12:30PM EST | DOI: 10.1002/2016JD025332

Key Points

- RWC was found to be a substantial source of gas phase air toxics in winter time.
- The MLR model results suggest that MOVES was over predicting mobile source emissions of CO relative to NO_x by a factor of 1.33
- MOVES was over predicting mobile source emissions of black carbon relative to NO_x by a factor of 3.

Numerical modeling of a multiscale gravity wave event and its airglow signatures over Mount Cook, New Zealand during the DEEPWAVE campaign.

C. J. Heale, K. Bossert, J. B. Snively, D. C. Fritts, P.-D. Pautet and M. J. Taylor

Accepted manuscript online: 9 JAN 2017 12:45PM EST | DOI: 10.1002/2016JD025700

Key Points

- A 2D nonlinear, compressible model is used to investigate a large amplitude, multiscale mountain wave event.
- Small-scale waves and vortices are generated in-situ by a breaking mountain wave, consistent with observations.
- There is a preference for instability to appear most prominent in the warm phase front of the mountain wave.

Climate and Dynamics

Boundaries of Tropical Tropopause Layer (TTL): A new perspective based on thermal and stability profiles

S. V. Sunilkumar, M. Muhsin, M. Venkat Ratnam, K. Parameswaran, B. V. Krishna Murthy and Maria Emmanuel

Accepted manuscript online: 7 JAN 2017 05:20PM EST | DOI: 10.1002/2016JD025217

Key Points Ray Theory and Transfer Matrix Method Based Model for Lightning Electromagnetic Pulses Propagating in Earth-Ionosphere Waveguide and Its

Accepted manuscript to appear in JID025599

- A ray theory based model for lightning sferics in earth-ionosphere waveguide is proposed and examined with measured data
- The model can be used to retrieve the ionosphere feature from lightning sferics or to predict the sferic feature of a lightning discharge
- Both simulation and observation show there is magneto-ionic splitting phenomenon in the lower ionosphere for lightning sferic at night

10.1002/2016JD025935

- We present an elementary effects sensitivity analysis of the natural factors on the global acetone budget.
- Of the factors tested, uncertainty associated with direct emissions of acetone from the terrestrial biosphere is the most important factor.
- Without representing ocean exchange, models are unlikely to accurately simulate atmospheric acetone, especially in the Southern Hemisphere.

Accepted manuscript online: 7 JAN 2017 09:00AM EST | DOI: 10.1002/2016JD025637

the warm-type heavy rainfall.

- **Distinct anthropogenic and natural linkages to the spectral absorption characteristics of aerosols over northeastern India**
- **The western part is mostly impacted by the fossil fuel based BC, while biomass burning contributes as much as 20-25% in the eastern part**
- **Fire induced additional local convection cause stronger vertical dispersion of absorbing aerosols during spring leads to higher atmospheric warming**

10.1002/2015JD024572

ED 001650 00041147-00006

- □ Surface energy partitioning at a site in the semi-arid area of the Loess Plateau is studied
- □ Terms contributing to the energy balance residual are investigated
- □ The influence of topography-induced non-stationary motions on the instantaneous energy closure ratio in the stable boundary layer is discussed

Aerosol and Clouds

Quantifying Uncertainties in Radar Forward Models through a Comparison Between CloudSat and SPaRtICus Reflectivity Factors

Jeana Mascio and Gerald G. Mace

Accepted manuscript online: 7 JAN 2017 08:50AM EST | DOI: 10.1002/2016JD025183

Key Points

- Ice-phase hydrometeor physical properties are very sensitive to assumptions regarding the distributions of mass with ice crystal dimension
- Reflectivity factors measured by CloudSat are combined synergistically with in situ particle size distributions to estimate ice crystal physical properties
- No specific habit emerges as preferred instead microphysical characteristics of ice crystal populations are distributed over a continuum

Climate and Dynamics

Multi-day evolution of convective bursts during western North Pacific tropical cyclone development and non-development using geostationary satellite measurements

Minhee Chang, Chang-Hoi Ho, Myung-Sook Park, Jinwon Kim and Myoung-Hwan Ahn

Accepted manuscript online: 7 JAN 2017 08:50AM EST | DOI: 10.1002/2016JD025535

Key Points

- Tropical cyclone formation is mostly associated with multi-day episodes of successive convective bursts, but some of non-developers too.
- Successive convection within the environment of weak vertical wind shear is critical in vorticity strengthening for tropical cyclogenesis.
- A small number of tropical cyclones develop without active convection in weak initial vorticity, which may be driven by large-scale forcing.

Aerosol and Clouds

Comparing simulated PSC optical properties with CALIPSO observations during the 2010 Antarctic Winter

Yunqian Zhu, Owen B. Toon, Michael C. Pitts, Alyn Lambert, Charles Bardeen and Douglas E. Kinnison

Accepted manuscript online: 5 JAN 2017 04:50PM EST | DOI: 10.1002/2016JD025191

Key Points

- 3-D modeling of polar stratospheric clouds simulates denitrification, dehydration and cloud coverage within error bars of observations
- CALIPSO PSC algorithm misclassifies ice PSCs into the Mixed composition categories under dehydrated and denitrified conditions
- Both the simulations and the observations suggest two major NAT formation mechanisms in the Antarctic 2010 winter

Composition and Chemistry

Summertime tropospheric ozone enhancement associated with a cold front passage

due to stratosphere-to-troposphere transport and biomass burning: simultaneous ground-based lidar and airborne measurements

Shi Kuang, Michael J. Newchurch, Matthew S. Johnson, Lihua Wang, John Burris, Robert B. Pierce, Edwin W. Eloranta, Ilana B. Pollack, Martin Graus, Joost de Gouw, Carsten Warneke, Thomas B. Ryerson, Milos Z. Markovic, John S. Holloway, Arastoo Pour-Biazar, Guanyu Huang, Xiong Liu and Nan Feng

Accepted manuscript online: 5 JAN 2017 04:35PM EST | DOI: 10.1002/2016JD026078

Key Points and pathways of dust during the Australian ‘Millennium Drought’ decade

Tadhg O’Loingsigh, Thomas Chubb, Matthew Baddock, Tyler Kelly, Nigel J. Tapper, Patrick De Bruckere and Scott M. Williams

Accepted manuscript online: 5 JAN 2017 03:26PM EST | DOI: 10.1002/2016JD025737

Key Points
Influence of biomass burning and stratosphere-to-transport on tropospheric ozone

- Backward trajectories from eastern Australian observation sites produce a climatology of dust pathways explicitly linked to dust presence
- In linking pathways back to prominent interior source regions both the likely source of observed dust and its transport are coupled
- Trajectories show that existing models of continental pathways are coarse and a North East dust pathway from Australia is significant

Climate and Dynamics

Past and future trends of Hydroclimatic Intensity over the Indian Monsoon Region

Mohan S. T and M. Rajeevan

Accepted manuscript online: 4 JAN 2017 10:41PM EST | DOI:

10.1002/2016JD025301

Key Points
of atmospheric waves on the maintenance and variability of the southern subtropical jet in winter

Yuhji Kumar

Accepted manuscript online: 4 JAN 2017 10:41PM EST | DOI: 10.1002/2016JD025814

- CMIP5 models tend to underestimate precipitation intensity, but overestimate dry spell length.

- Key Points**
- Increase in HY-INT is mainly due to increase in the precipitation intensity and not in the frequency of dry spells
 - The interannual variability of the winter subtropical jet in the Southern Hemisphere is provided by low-frequency transient waves.
 - The largest driver of daily variability of the jet is produced by interference between synoptic and low-frequency transient waves.
 - Synoptic waves are the largest driver of monthly jet variability.

Aerosol and Clouds

Direct atmosphere opacity observations from CALIPSO provide new constraints on cloud-radiation interactions

R. Guzman, H. Chepfer, V. Noel, T. Vaillant de Guélis, J. E. Kay, P. Raberanto, G. Cesana, M. A. Vaughan and D. M. Winker

Accepted manuscript online: 4 JAN 2017 10:30PM EST | DOI: 10.1002/2016JD025946

Key Points

- Spaceborne lidar partitions global total cloud cover into 35% thin and 31% opaque
- The lidar attenuation altitude directly controls TOA longwave emission by opaque clouds
- Simulator-enabled comparisons reveal large compensating climate model errors with relevance to circulation and feedbacks

Composition and Chemistry

Entrainment of stratospheric air and Asian pollution by the convective boundary layer in the Southwestern U.S.

A. O. Langford, R. J. Alvarez II, J. Brioude, R. Fine, M. Gustin, M. Y. Lin, R. D. Marchbanks, R. B. Pierce, S. P. Sandberg, C. J. Senff, A. M. Weickmann and E. J. Williams

Accepted manuscript online: 30 DEC 2016 02:22PM EST | DOI: 10.1002/2016JD025987

Temperature and Burning History Affect Emissions of Greenhouse Gasses and Aerosol Particles from Tropical Peatland Fire

Miki Itai, Keiichi Kato, Fei Meng, David Yang, Yenshiang Chen, Masayuki Hara, Shinsuke Sawan and Chaitan Mishra

Accepted manuscript online: 30 DEC 2016 02:20PM EST | DOI: 10.1002/2016JD025987

Key Points

- Stratospheric intrusions can cause exceedances of the National Ambient Air Quality Standard for ozone in the Southwestern U.S.

- Emissions of CH₄ and aerosol particles from tropical peatland burning are regulated by temperature
- CH₄ emission from combustion of charcoal is much lower than that from peat
- Temperature and burning history need to be considered in estimating emission

Aerosol and Clouds

Polarized reflectance factors of vegetation covers from laboratory and field: A comparison with modeled results

Zhongqiu Sun, Di Wu, Yunfeng Lv and Yunsheng Zhao

Accepted manuscript online: 29 DEC 2016 09:10PM EST | DOI: 10.1002/2016JD025892

Estimation of Global Earth Outgoing Radiation at High Temporal Resolution using a Theoretical Constellation of Satellites

Jake O. Grist, David U. Chishti, Chaojie Roberts, Gopal K. Sankaran, Han and Cyril J. Morcrette

Accepted manuscript online: 29 DEC 2016 09:10PM EST | DOI: 10.1002/2016JD025514

Key Points

- A large constellation of satellites provides unprecedented sampling that shows promise for improving Earth outgoing radiation observations
- Hourly synoptic-scale global outgoing irradiance fields are recovered from idealized synthetic measurements after one hour of sampling
- Future engineering should focus on limiting systematic instrument error which remains of central importance to the observational problem

Composition and Chemistry

Investigating dominant characteristics of fires across the Amazon during 2005–2014 through satellite data synthesis of combustion signatures

W. Tang and A. F. Arellano Jr.

Accepted manuscript online: 29 DEC 2016 09:05PM EST | DOI: 10.1002/2016JD025216

Key Points

- A new satellite-derived smoke index is introduced to indicate combustion phases
- Multi-species analysis reveals variations in combustion phases within the fire season in the Amazon
- Flaming combustion is more dominant in deforestation fires while drought likely enhances more the spread of smoldering understory fires

Low CCN concentration air masses over the eastern North Atlantic: seasonality, meteorology and drivers.

Robert Wood, Jayson D. Stemmler, Jasmine Rémillard and Anne Jefferson.

Accepted manuscript online: 24 DEC 2016 01:11AM EST | DOI:

10.1002/2016JD025557

Key Points

- A 20 month cloud condensation nuclei (CCN) dataset from the Azores is used to identify air masses with very low concentrations
- Low CCN air masses tend to occur during winter and spring and are often associated with cold air outbreaks occurring upstream of the Azores
- Liquid water path enhancement upstream of air mass arrival at the Azores can account for low concentrations via coalescence scavenging

Composition and Chemistry

Mineral dust over West and Central Sahel: seasonal patterns of dry and wet deposition fluxes from a pluriannual sampling (2006-2012)

B. Marticorena, B. Chatenet, J. L. Rajot, G. Bergametti, A. Deroubaix, J. Vincent, A. Kouoi, C. Schmechtig, M. Coulibaly, A. Diallo, I. Koné, A. Maman, T. NDiaye and A. Zakou

Accepted manuscript online: 23 DEC 2016 09:06PM EST | DOI: 10.1002/2016JD025995

Key Points

- Annual dust deposition is of the order of 100 g m^{-2}
- Wet deposition is the main source of variability
- Dry deposition is primarily controlled by dust concentration

Lagrangian dynamics of the mistral during the HyMeX SOP2

P. Drobinski, B. Alonzo, C. Basdevant, P. Cocquerez, A. Doerenbecher, N. Fourrié and M. Nuret

Accepted manuscript online: 23 DEC 2016 12:50AM EST | DOI:

10.1002/2016JD025530

Key Points

- Mesoscale mistral dynamics offshore
- Departure from geostrophic assumption
- Cyclostrophic contribution

Climate and Dynamics

Large uncertainties in observed daily precipitation extremes over land

N. Herold, A. Behrangi and L. V. Alexander

Accepted manuscript online: 22 DEC 2016 02:40PM EST | DOI:

10.1002/2016JD025842

Key Points

- The uncertainty in daily precipitation extremes due to product and resolution choice is determined from five global/quasi-global products.
- The more extreme a measure of precipitation is, the more sensitive it is to product and resolution choice.
- Given current observational uncertainties, model evaluation of very extreme rainfall must rely on multiple products.

Aerosol and Clouds

Cloud and sun-glint statistics derived from GOES and MODIS observations over the Intra-Americas Sea for GEO-CAPE mission planning

Lian Feng, Chuanmin Hu, Brian Barnes, Antonio Mannino, Andrew K. Heidinger, Kathleen Strabala and Laura T. Iraci

Accepted manuscript online: 22 DEC 2016 02:15PM EST | DOI:
10.1002/2016JD025372

Key Points

- The number of cloud-free hourly observations per day over the Intra-Americas Sea estimated using GOES hourly measurements
- The number of sun-glint affected hourly observations per day estimated with the planned GEO-CAPE observation geometry and wind speed
- Provide valuable information for GEO-CAPE mission planning to maximize its value through minimizing the impacts of clouds and sun-glint

Climate and Dynamics

Teleconnection between the South Atlantic Convergence Zone and the Southern Indian Ocean: Implications for Tropical Cyclone Activity

Evan DeBlander and Jeffrey Shaman

Accepted manuscript online: 22 DEC 2016 02:00PM EST | DOI:
10.1002/2016JD025373

Key Points

- Interannual SACZ variability initiates a Rossby wave train
- Stationary Rossby wave train modulates flow over Indian Ocean
- Modulated flow influences tropical cyclone activity

Composition and Chemistry

A Photosynthesis-based Two-leaf Canopy Stomatal Conductance Model for Meteorology and Air Quality Modeling with WRF/CMAQ PX LSM

Limei Ran, Jonathan Pleim, Conghe Song, Larry Band, John T. Walker and Francis S. Binkowski

Accepted manuscript online: 22 DEC 2016 01:35PM EST | DOI:
10.1002/2016JD025583

Key Points

- A coupled photosynthesis-stomatal conductance model is implemented and evaluated for PX LSM in WRF/CMAQ
- The photosynthesis-based model simulates latent heat as well as the current Jarvis functional approach in PX LSM
- The photosynthesis-based model shows distinct advantages in simulating LH and ozone fluxes for grassland

Climate and Dynamics

Assessing crop yield simulations driven by the NARCCAP regional climate models in the southeast United States

D. W. Shin, Guillermo A. Baigorria, Consuelo C. Romero, Steve Cocke, Ji-Hyun Oh and Baek-Min Kim

Accepted manuscript online: 21 DEC 2016 05:20PM EST | DOI:
10.1002/2016JD025576

Key Points

- Economically valuable crop production can be assessed better using a set of the regional climate models

- Parameterizing surface wind speed over complex topography
N. Helbig, R. Mott, A. van Herwijnen, A. Winstral and T. Jonas
Accepted manuscript online: 16 DEC 2016 01:11AM EST | DOI:
10.1002/2016JD025593

- Subgrid parameterization for coarse-scale wind speed using a subgrid parameterization for the sky view factor.
- Statistical downscaling using fine-scale terrain parameters and the subgrid parameterization for coarse-scale wind speed.
- Validation of downscaled wind speed with measurements showed overall improved performance compared to applying coarse-scale wind speed

Robert M. Graham, Annette Rinke, Lana Cohen, Stephen R. Hudson, Von P. Walden,
Mats A. Granskog, Wolfgang Dorn, Markus Kayser and Marion Maturilli
Accepted manuscript online: 13 DEC 2016 12:45PM EST | DOI:
10.1002/2016JD025475

- Recent warming in the Atlantic Sector of the Arctic is driven by an increased oceanic heat flux
- Decrease in opacity by clouds is observed
- Simulations show that DNVAR can effectively reduce background wind vector errors and iteration time.
- Experimental results on ENVISAR/ASAR show that DNVAR performs better than DIRECT.

Man-Hae Kim, Ali H. Omar, Mark A. Vaughan, David M. Winker, Charles R. Trepte,
Yongxiang Hu, Zhaoyan Liu and Sang-Woo Kim
Accepted manuscript online: 12 DEC 2016 11:41AM EST | DOI:
10.1002/2016JD025797

Key Points

Research Articles

Assimilating the global satellite mapping of precipitation data with the Nonhydrostatic Icosahedral Atmospheric Model (NICAM)

Version of Record online: 18 JAN 2017 | DOI: 10.1002/2016JD025355

Version of Record: medical weather 2017;10(10):2016JD025795

Key Findings

Key Point: The Bay of Bengal and the South China Sea are major sources for rainfall in North China

- The interannual variability of summer precipitation over the southern TP is mainly controlled by remote moisture transport
- NAO influences precipitation and eastward moisture transport over the southern TP through forcing wave train and modulating Asian jet
- Dynamic processes of the atmosphere are more important in regulating the variability of TP precipitation

Seasonal variability of warm boundary layer cloud and precipitation properties in the Southern Ocean as diagnosed from A-Train data

Version of Record online: 18 JAN 2017 | DOI: 10.1002/2016JD025348

Phillip M. Bitzer

Key Words: Pipe In Tent test results to have a mud a foreign and its preparation layer temperature of prepared to summer

- 11.2% of lightning flashes detected from space contain continuing current

- **11.2% of lightning flashes detected from space contain continuing current**

[illegible]

Qing You, Brian D. Kohn, Erhard Fetscher, Sun Wong, Richard Frey and Kerry G.

- The motion manners of falling snow grains are directly affected by the

- The reaction force of snow particles on wind field largely affects the snow distribution
- Resultant temperature-mediated cloud cover responses from MODIS are highly dependent on calibration, retrieval methods, and instruments
- A robust increase in altitude is found for high clouds, while a robust negative

- response is noticed for optically thick low clouds
- Compared to Aqua, Terra MODIS C6 cloud cover responses vary greatly with time period, suggesting additional Terra calibration degradation

Climate and Dynamics

Bidirectional leader development in a preexisting channel as observed in rocket-triggered lightning flashes

Xiushu Qie, Yunjiao Pu, Rubin Jiang, Zhuling Sun, Mingyuan Liu, Hongbo Zhang, Xun Li, Gaopeng Lu and Ye Tian

Version of Record online: 17 JAN 2017 | DOI: 10.1002/2016JD025224

Key Points

- Bidirectional leader in a preexisting discharge channel was documented in rocket-triggered lightning flashes
- The positive end moving upward along the decayed dart leader path started earlier and propagated twice as fast as the negative end
- The bidirectional leader can be regarded as a recoil leader but with polarity being contrary to the traditional recoil leader

Aerosol and Clouds

Estimation of atmospheric aerosol composition from ground-based remote sensing measurements of Sun-sky radiometer

Y. S. Xie, Z. Q. Li, Y. X. Zhang, Y. Zhang, D. H. Li, K. T. Li, H. Xu, Y. Zhang, Y. Q. Wang, X. F. Chen, J. J. Schauer and M. Bergin

Version of Record online: 14 JAN 2017 | DOI: 10.1002/2016JD025839

Key Points

- Aerosol main components including BC, BrC, DU, POM, AS, SS, and AW are quantitatively estimated by remote sensing measurements
- The estimated BC, BrC, AS, and fine components are preliminarily validated by synchronous in situ observation
- Aerosol imaginary refractive index is sensitive to BC and BrC, while volume size and sphericity parameter have strong correlations with DU

Climate and Dynamics

Joint impact of North and South Pacific extratropical atmospheric variability on the onset of ENSO events

Ruiqiang Ding, Jianping Li, Yu-heng Tseng, Cheng Sun and Fei Xie

Version of Record online: 14 JAN 2017 | DOI: 10.1002/2016JD025502

Key Points

- The relationship of North Pacific SLP anomalies to subsequent ENSO events depends on the state of simultaneous South Pacific SLP anomalies
- The influence of North Pacific SLP anomalies on the westerly along the equator interferes with the effect of South Pacific anomalies
- A model based on combined North and South Pacific signals significantly improves the forecast skill of ENSO 1 year ahead

Composition and Chemistry

Sources and composition of PM_{2.5} in the Colorado Front Range during the DISCOVER-AQ study

M. J. Valerino, J. J. Johnson, J. Izumi, D. Orozco, R. M. Hoff, R. Delgado and C. J. Hennigan

Version of Record online: 14 JAN 2017 | DOI: 10.1002/2016JD025830

Key Points

- Aerosol chemical composition in Colorado during DISCOVER-AQ was dominated by secondary organic compounds
- Systematic differences in aerosol concentrations between Golden and downtown Denver were likely due to terrain-induced flow patterns
- The long-range transport of dust and fire emissions impacted the Colorado Front Range in two separate events

Aerosol and Clouds

Contributions of volatile and nonvolatile compounds (at 300°C) to condensational growth of atmospheric nanoparticles: An assessment based on 8.5 years of observations at the Central Europe background site Melpitz

Zhibin Wang, Wolfram Birmili, Amar Hamed, Birgit Wehner, Gerald Spindler, Xiangyu Pei, Zhijun Wu, Yafang Cheng, Hang Su and Alfred Wiedensohler

Version of Record online: 14 JAN 2017 | DOI: 10.1002/2016JD025581

Key Points of surface solar radiation in unforced CMIP5 simulations

D. Folini, T. N. Dallafiior, M. Z. Hakuba and M. Wild

Version of Record online: 13 JAN 2017 | DOI: 10.1002/2016JD025569

Key Points of optical light scattering and absorption by ice crystals and their growth rate

Michael Petermann, Wiebke Deierling, Chuntao Liu, Douglas Mach and Christina Kalb

Version of Record online: 13 JAN 2017 | DOI: 10.1002/2016JD025542

Key Points Absolute and relative trends depend differently on geographical region, 20 year trends have about 50% smaller magnitude than 15 year trends

- Records suggest that more should be taken when identifying significant trends
- Radiation trends differ considerably and may differ as to reflect scattering
- Oceanic flashes are still larger and more energetic when they occur in similar cloud regions as their land-based counterparts

Climate and Dynamics

A calibration-free formulation of the complementary relationship of evaporation for continental-scale hydrology

Jozsef Szilagyi, Richard Crago and Russell Qualls

Version of Record online: 13 JAN 2017 | DOI: 10.1002/2016JD025611

Key Points

- A proper new scaling is introduced in the complementary relationship of evaporation
- An upper limit is defined for the Penman-equation evaporation rate
- A model-independent new method is developed for obtaining the Priestley-Taylor parameter value

Aerosol and Clouds

A study on radiative transfer effects in 3-D cloudy atmosphere using satellite data

M. Okata, T. Nakajima, K. Suzuki, T. Inoue, T. Y. Nakajima and H. Okamoto

Version of Record online: 13 JAN 2017 | DOI: 10.1002/2016JD025441

Key Points

- An algorithm is devised for constructing 3-D cloud fields using MODIS/Aqua and CPR/CloudSat data focusing on water clouds
- Solar and infrared broadband radiative fluxes are estimated in 3-D cloudy atmospheres by using a Monte Carlo radiative transfer code

Version of Record online: 10 JAN 2017 | DOI: 10.1002/2016JD025363

- To optimize the selected key parameters using the DEMC scheme for different
- Relative contributions of weather systems to mean and extreme global precipitation and compare the performance of the original model and the
Nonuniformly distributed DEMC scheme for improving the vertical profiles of
Version of Record online: 10 JAN 2017 | DOI: 10.1002/2016JD025222
- The assimilation of DYNAMO observations produces stronger local westerly
- Key Points
Penetration of urban heat islands from the GEOS-5 reanalysis of multiple cities
P. Raftery and E. E. DYNAMO observations improves the GEOS-5 reanalysis
Version of Record online: 10 JAN 2017 | DOI: 10.1002/2016JD025657
- The contributions of tropical cyclones to extreme precipitation showed clear peaks on temporal scales of 24–72 h
 - Substantial island urban heat island intensity is proportional to the physical size of the city
 - Extreme precipitation intensity and urban heat island intensity
 - Urban heat island pattern connected to local factors

Aerosol and Clouds

Downward solar global irradiance at the surface in São Paulo city—The climatological effects of aerosol and clouds

M. A. Yamasoe, N. M. E. do Rosário and K. M. Barros

Version of Record online: 10 JAN 2017 | DOI: 10.1002/2016JD025585

Key Points

- For the first time, climatological aerosol and clouds SW radiative effects are estimated for the São Paulo megacity
- The SW effect of smoke from distant fires surpasses the local pollution effect and is equivalent to the cloud radiative effect in winter
- Cloud radiative effect highly depends on cloud level

Climate and Dynamics

Spectra of long-term series for wind speed and wave height in the Indian Ocean area

V. G. Polnikov and F. A. Pogarskiy

Version of Record online: 9 JAN 2017 | DOI: 10.1002/2016JD025559

Key Points of grain size impacts on seasonal snow albedo at open sites in New Hampshire

Alden C. Thompson, Mary R. Albert, James E. Lazarcik, Jack E. Dibb, and Cameron P. Wake

Amante, Eric Scheuer, Madeleine M. Mineau and Mary R. Albert

Version of Record online: 9 JAN 2017 | DOI: 10.1002/2016JD025362

- Spectral slopes depend on location of the considered point to the equator
- Key Points
Direct relations between spectra for wind, pressure, and wave height were derived from the Navier-Stokes equations
- The most important driver for snow albedo changes in New Hampshire is grain size evolution
 - Winter storm trajectories in the northeastern U.S. impact resulting snow properties
 - 52% of variability in broadband albedo in New Hampshire snow can be parameterized by using mean temperature and days since snowfall

Composition and Chemistry

Major fraction of black carbon is flushed from the melting New Hampshire snowpack nearly as quickly as soluble impurities

James Lazarcik, Jack E. Dibb, Alden C. Adolph, Jacqueline M. Amante, Cameron P.

Wake, Eric Scheuer, Madeleine M. Mineau and Mary R. Albert

Version of Record online: 9 JAN 2017 | DOI: 10.1002/2016JD025351

Key Points

- Seasonal snowpacks store major ions and BC throughout the winter and release them quickly in high concentrations at the onset of melt
- Up to 60% of total snowpack BC is washed from the snowpack in the first 24% of snow-water equivalence loss
- Late season enhancement of surface BC concentrations could not be linked to melt events in this study

Climate and Dynamics

Investigation of gust-seismic relationships and applications to gust detection

W. Hu, S. C. Pryor, F. Letson, J. Tytell and R. J. Barthelmie

Version of Record online: 9 JAN 2017 | DOI: 10.1002/2016JD025858

Lake-atmosphere coupling in EURO-CORDEX evaluation experiments

Sebastian Knist, Klaus Goergen, Erasmo Buonomo, Ole Bøssing Christensen, Augustin Velez, Rita M. C. da Silva, Rowan Presny, Jesús Fernández, Mikel Gortia-Diez, Darin Jacob, Stelios K. Katsis, Eleni Katragkou, Klaus Keuler, Stephanie Mayer, Eusebio Mijanguez, Grigoris Ntoninis, Redwan M. Sogropo, Stefan B. Wolowski, Gabriella Croci, Oleg Tikhonovich, Robert Vautard, Kirsten Warrach-Sagi, Volker Wulfmeyer and Eleonora Simeone
Version of Record online: 7 JAN 2017 | DOI: 10.1002/2016JD025476

Key Points

- Spatial patterns, seasonal cycles, and interannual variability of coupling related soil moisture and surface fluxes are reproduced
- EURO-CORDEX RCMs agree in large-scale weak and strong coupling regimes while there is large variability in the transition zone
- In comparison to FLUXNET and GLEAM data the RCMs show a clear tendency toward overestimating coupling strength

Aerosol and Clouds

Development of an improved aerosol product over the Indian subcontinent:

Blending model, satellite, and ground-based estimates

Randhir Singh, Charu Singh, Satya P. Ojha, A. Senthil Kumar and A. S. Kiran Kumar

Version of Record online: 7 JAN 2017 | DOI: 10.1002/2016JD025335

Key Points

- Large systematic and random differences are seen in the ECMWF, MISR, and MODIS AOD
- A merged AOD product is generated for 13 years over the Indian subcontinent
- The merged AOD shows good agreement with AERONET observations

Climate and Dynamics

Mechanisms of secondary convection within a Mei-Yu frontal mesoscale convective system in eastern China

Xin Xu, Ming Xue, Yuan Wang and Hao Huang

Version of Record online: 6 JAN 2017 | DOI: 10.1002/2016JD026017

Convective analysis and urban signatures of a heavy rainfall on 7 August 2015 in Beijing

Miao Ye, Shigang Min and Qingchao Gong

Version of Record online: 6 JAN 2017 | DOI: 10.1002/2016JD025420

- The descent of the MCV occurs in response to the lowering of the diabatic heating center within the convective system

- Surface cold pool appears to play a minor role in promoting secondary
- ~~Cloud formation guided by wind lifting helps to utilize wind direction~~ are main factors influencing this rainfall event
- Urban is indispensable in forecasting the rainstorm
- Urbanization caused the precipitation to increase in the downstream suburban area

Aerosol and Clouds

A fast hybrid (3-D/1-D) model for thermal radiative transfer in cirrus via successive orders of scattering

Thomas Fauchez, Anthony B. Davis, Céline Cornet, Frédéric Szczap, Steven Platnick, Philippe Dubuisson and François Thieuleux
Version of Record online: 6 JAN 2017 | DOI: 10.1002/2016JD025607

Can MODIS cloud fraction fully represent the diurnal and seasonal variations at DOE ARM SGP and Manus sites?

Yang Meng and Shunlei Yang
Version of Record online: 5 JAN 2017 | DOI: 10.1002/2016JD025515

- On average, for thermal infrared wavelengths, 99% of the total radiance is computed after the third scattering
- Three-dimensional radiances can be approximated using an efficient hybrid
- Considerable timing and direction errors exist in scattering cloud fraction productions from MODIS
- The time representation errors are ~12.68% (13.27%) and 2.98% (3.97%) at daily and monthly time scale over SGP (Manus) site, respectively
- The time representation error accounts for ~23% (21%) of total MODIS CF uncertainties over SGP (Manus) site at monthly time scale

Composition and Chemistry

Improved scheme for Cross-track Infrared Sounder geolocation assessment and optimization

Likun Wang, Bin Zhang, Denis Tremblay and Yong Han
Version of Record online: 5 JAN 2017 | DOI: 10.1002/2016JD025812

Key Points

- CrIS and VIIRS are spatially aligned together
- CrIS geolocation error is less than 300 m
- A new geolocation assessment method is developed

Aerosol and Clouds

A critical evaluation of modeled solar irradiance over California for hydrologic and land surface modeling

Karl E. Lapo, Laura M. Hinkelman, Edwin Sumargo, Mimi Hughes and Jessica D. Lundquist
Version of Record online: 4 JAN 2017 | DOI: 10.1002/2016JD025527

Key Points

- Q_{sl} estimates were found to have large biases when evaluated over a region of complex terrain
- Q_{sl} errors were related to precipitation but not aerosols or water vapor
- Users of these estimates need to be aware of this large source of uncertainty in complex terrain

Climate and Dynamics

Canopy effects on snow sublimation from a central Arizona Basin

Bohumil M. Svoma

Version of Record online: 4 JAN 2017 | DOI: 10.1002/2016JD025184

Key Points

- Forest cover reduction decreases snow sublimation from both the canopy and snowpack at the basin scale
- Forest cover reduction only increases snowpack sublimation for conditions supporting long snowpack duration
- Snowpack sublimation increase overcomes canopy sublimation decrease upon forest reduction in dense, high, south aspect forest in wet years

Aerosol and Clouds

Shipborne observations of the radiative effect of Southern Ocean clouds

Alain Protat, Eric Schulz, Lawrence Rikus, Zhian Sun, Yi Xiao and Melita Keywood

Version of Record online: 4 JAN 2017 | DOI: 10.1002/2016JD026061

Key Points

- Shortwave cooling dominates longwave heating in the surface radiative balance in our Southern Ocean shipborne data set
- The frequency of low-level clouds and multilayer situations is inaccurately reproduced in our regional model ACCESS
- Errors in simulated cloud cover result in compensating errors on the surface cloud radiative effect in the model

Climate and Dynamics

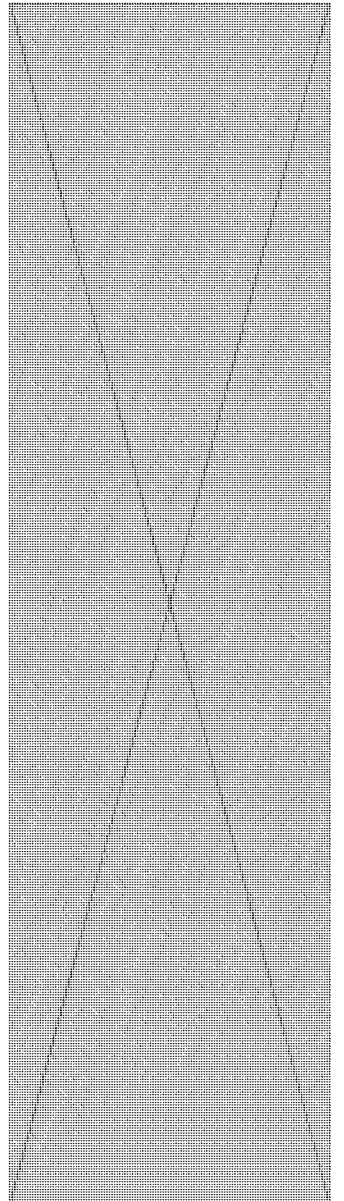
Frequency spectra and vertical profiles of wind fluctuations in the summer Antarctic mesosphere revealed by MST radar observations

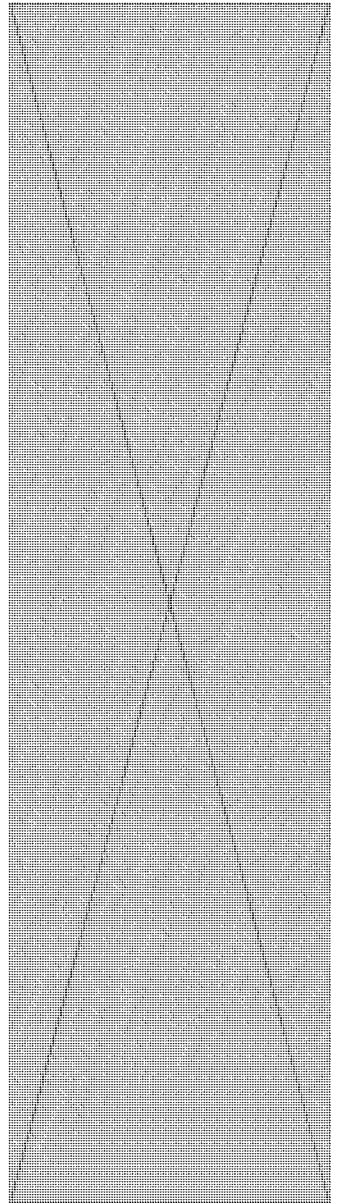
Kaoru Sato, Masashi Kohma, Masaki Tsutsumi and Toru Sato

Version of Record online: 3 JAN 2017 | DOI: 10.1002/2016JD025834

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- Power and momentum flux spectra in a wide-frequency range were estimated using MST radar observations in the Antarctic mesosphere
- Mesospheric wind spectra obey power laws at frequencies higher than the inertial frequency and have isolated peaks at 1 d and at 0.5 d
- Vertical profiles of momentum fluxes show significant eastward forcing, consistent with the mean eastward wind shear and equatorward flow





To: David Foerter[dfoerter@otcair.org]; Possiel, Norm[Possiel.Norm@epa.gov]; Ling, Michael[Ling.Michael@epa.gov]; Wayland, Richard[Wayland.Richard@epa.gov]
Cc: hornback@metro4-sesarm.org[hornback@metro4-sesarm.org]; Rob Kaleel[kaleel@ladco.org]; Mary Uhl[maryuhl@westar.org]
From: Theresa Pella
Sent: Thur 6/1/2017 7:31:07 PM
Subject: Re: summary of 2015 NODA comments

Dave,

Thank you for highlighting the importance of looking at the organizational structure of commenters. The threshold item, in particular, points to the need to continue to talk things through, not just close our eyes to an issue not all regions may agree is an issue. I'm not advocating a change to the threshold, but the fact that so many submitted comments on the threshold to me places a higher priority on it than some of the other comments.

Theresa

Theresa Pella, Executive Director

Central States Air Resource Agencies Association (CenSARA)

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From: David Foerter <dfoerter@otcair.org>
Sent: Thursday, June 1, 2017 11:36 AM
To: Norm Possiel (possiel.norm@epa.gov); Ling, Michael; Wayland, Richard
Cc: Theresa Pella; John Hornback - Metro 4/SESARM/VISTAS (hornback@metro4-sesarm.org); Rob Kaleel; Mary Uhl
Subject: summary of 2015 NODA comments

Norm – thank you for the excellent review of the summary of the 2015 ozone standard NODA comments today. I believe the summary of comments adds to states understanding of the importance of the NODA. I offer the following observations:

IF these comments do end up influencing guidance for Good Neighbor SIPs or their approval by EPA (HQ or Regions), I believe the term “A. Overarching” is a misnomer and confusing in the context of comments. Specifically, “Overarching” may be inferred as dominant or generally accepted comments, which is not the case. I don’t believe the intent was to give these comments extra weight rather than these comments were relevant yet did not fit anywhere else.

In addition, several of the regional planning organizations (i.e. LADCO, OTC, AAPCA) comments are lumped with other comments; however, the comments from these organizations carry the weight of all their member states. For example, the OTC comments provide a consensus of the twelve states and the District of Columbia.

As I also pointed out on today’s call, there is often an upwind/downwind geographic relationship to the commenters. As I noted on today’s call item “2. Contribution Threshold” comments are dominated by states and industries mostly upwind of mid-Atlantic and northeast states where the downwind receptors are located. Conspicuous, there is a lack of any comments in this section from the mid-Atlantic and/or northeast states or the RPOs that represent them.

Best Regards,

Dave

David C. Foerter

Executive Director

Ozone Transport Commission

and MANE-VU

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Email: dfoerter@otcair.org

From: Mary Uhl
Location: Ex. 6 conference ID: Ex. 6
Importance: Normal
Subject: Fed/State Technical Work Collaboration Group Conference call
Start Date/Time: Thur 2/22/2018 4:00:00 PM
End Date/Time: Thur 2/22/2018 5:30:00 PM
[Feb222018 Fed-State Draft Agenda.docx](#)
[2016 Collaborative Emissions Update 022218.pptx](#)
[2016 EPA AQ Modeling Update 022218.pptx](#)
[EPA Global Simulations Update 022218.pptx](#)

Please note the new conference call number and ID!

Agenda below and attached. Please let me know if you have additional agenda items.

agenda:

1. Update on EPA's preliminary 2016 modeling based largely on NEI 2014v1
 - Structure, timeline, and preliminary results
2. 2016 emissions modeling inputs from 2014 NEI v2 and 2016 data to be used in alpha version of 2016 Emissions Modeling Platform
 - Progress on setting up Emission Sector WGs and holding calls
 - Link to platform collaborative Google folder
3. EPA work products for state and regional use
 - Release of 2014 v2 NEI
 - Sharing of 2014 and 2015 meteorological and air quality modeling platforms
 - Technical analysis results planned for delivery in 2018
4. OTC's source apportionment work on the 2011 platform
5. WESTAR TEMPO Workshop-April 10-11 in Fort Collins, CO

From: Hong, Bryan
Location: Dial-in: **Ex. 6**; Conf. Rm.: **Ex. 6**
Importance: Normal
Subject: FW: SCOE Air Quality, Climate Change, and Energy Subcommittee Call
Start Date/Time: Thur 8/31/2017 5:30:00 PM
End Date/Time: Thur 8/31/2017 6:30:00 PM
AQ Subcommittee Agenda 08.31.17 Draft v2.docx

Here is the full agenda.

-----Original Appointment-----

From: Hong, Bryan [mailto:bhong@ashto.org]
Sent: Wednesday, August 30, 2017 2:09 PM
To: Hong, Bryan; Bowles, Jack
Subject: [SPAM] FW: SCOE Air Quality, Climate Change, and Energy Subcommittee Call
When: Thursday, August 31, 2017 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Dial-in: **Ex. 6** Conf. Rm.: **Ex. 6**

Hi Jack,

Please see the call in information below and pass along as needed.

Thanks,

Bryan

-----Original Appointment-----

From: Hong, Bryan
Sent: Tuesday, August 1, 2017 1:47 PM
To: Hong, Bryan; SCOE_AQ@ashto.org; Ho, Cecilia (FHWA)
Cc: Choi Yoojoong; Turner Colleen M.; Landsberg Karin; Holloway Elton D.; Voigt Christopher; Casey Austina Theresa; Crabbe Philip F.; Wasko Peter Roy; Alcala Noel; Hill Tim M; Porta, Virginia; Phillips Michael Henry; Henderson Michael E; Allison Smith [KDOT]; Ploch Jackie Ann; Mortenson Marilee; Berrios Mraiano; Eggleston Shannon; Savage, Melissa; Hoilett, Samantha; Choi, Yoojoong@DOT; Colleen Turner; Landsberg, Karin; Holloway, Elton; Voigt, Christopher G. (VDOT); Casey, Austina (DDOT); Philip Crabbe III; Wasko, Peter (DOT); Noel.Alcala@dot.ohio.gov; Tim.Hill@dot.ohio.gov; Phillips, Henry; Mike Henderson; Jackie Ploch; Mortenson, Marilee C@DOT; Berrios, Mariano
Subject: SCOE Air Quality, Climate Change, and Energy Subcommittee Call
When: Thursday, August 31, 2017 1:30 PM-2:30 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Dial-in: **Ex. 6** Conf. Rm.: **Ex. 6**

Air Quality, Climate Change, and Energy Subcommittee Members:

Please reserve this time for our next subcommittee meeting. If you have topics or items you'd like the group to discuss, along with any questions, feel free to let me know.

Thanks,

Bryan

From: Clint Woods
Location: Call-In Number: **Ex. 6** Paccode: **Ex. 6**
Importance: Normal
Subject: Fwd: EPA - AAPCA Call on Permitting (Hosted by Permitting & NSR Committee)
Start Date/Time: Wed 8/30/2017 7:00:00 PM
End Date/Time: Wed 8/30/2017 8:00:00 PM
AAPCA Permitting Reform Call Agenda and Key Agency Issues 8-29-2017.pdf
ATT00001.htm

FYI

Sent from my iPhone

Begin forwarded message:

From: "Clint Woods" <cwoods@csg.org>
To: "Wood, Anna" <Wood.Anna@epa.gov>, "Johnson, Yvonne W" <Johnson.Yvonnew@epa.gov>
Subject: EPA - AAPCA Call on Permitting (Hosted by Permitting & NSR Committee)

8/29 update – Below and attached (PDF) is our proposed agenda for the August 30 call with AAPCA's Permitting/NSR Committee

AAPCA Member Call with U.S. EPA on Interagency Permitting Reforms
Hosted by Permitting/NSR Committee
Wednesday, August 30, 3:00 – 4:00 PM Eastern
Call-in information: **Ex. 6** Passcode: **Ex. 6**

Proposed Agenda:

1. Welcome / Roll Call
2. U.S. EPA Updates on Interagency Permitting Reforms (*see background information at bottom of agenda)
3. Key AAPCA Member Issues Raised in Recent Comments (most of these comments are taken from AAPCA July 2017 report, The State of Regulatory Reform: Navigating State Perspectives on Clean Air Act Regulations Under Executive Order 13777<http://www.csg.org/aapca_site/documents/AAPCA-StateofRegulatoryReform-July2017.pdf>)

Title V Review / Petitions Process

- * Sample comment: "Responses to a review of a proposed permit that deviates from the Act leads to uncertainty to the public, the State authority, and the applicant as to where the permit stands and, specifically, if the permit can be issued without threat from EPA veto."
– North Carolina DAQ, comments<<https://ncdenr.s3.amazonaws.com/s3fs->

[public/Air%20Quality/rules/letters/2017%2005%2015%20EPA%20Docket%202017-0190%20Evaluation%20of%20Existing%20Regulations.pdf](http://www.csg.org/aapca_site/news/documents/public/Air%20Quality/rules/letters/2017%2005%2015%20EPA%20Docket%202017-0190%20Evaluation%20of%20Existing%20Regulations.pdf)> on U.S. EPA’s Regulatory Reform, Attachment (pg. 33)

* AAPCA member comments on U.S. EPA’s proposed “Revisions to the Title V Permitting Program Regulations to Improve the Petitions Process”: Alabama DEM<http://www.csg.org/aapca_site/news/documents/ALDEMTitleVComments-10-21-2016.pdf>; Arkansas DEQ<http://www.csg.org/aapca_site/news/documents/ARDEQTitleVComments-10-13-2016.pdf>; Georgia EPD<http://www.csg.org/aapca_site/news/documents/GAEPDTitleVComments-10-24-2016.pdf>; Nevada DEP<http://www.csg.org/aapca_site/news/documents/NVDEPTitleVComments-10-24-2016.pdf>; North Carolina DEQ<http://www.csg.org/aapca_site/news/documents/NCDEQTitleVComments-10-24-2016.pdf>; South Carolina DHEC<http://www.csg.org/aapca_site/news/documents/SCDHECTitleVComments-10-24-2016.pdf>; Texas CEQ<http://www.csg.org/aapca_site/news/documents/TCEQTitleVComments-10-24-2016.pdf>; Virginia DEQ<http://www.csg.org/aapca_site/news/documents/VADEQTitleVComments-10-20-2016.pdf>; Wyoming DEQ<http://www.csg.org/aapca_site/news/documents/WYDEQTitleVComments-10-24-2016.pdf>

* Comments on U.S. EPA’s Regulatory Reform: AAPCA<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf>, pg. 4; Georgia EPD<http://www.csg.org/aapca_site/news/documents/GeorgiaEPDCommentstoDocketIDNoEPA-HQ-OA-2017-0190.pdf>, pg. 3; North Carolina DAQ<<https://ncdenr.s3.amazonaws.com/s3fs-public/Air%20Quality/rules/letters/2017%2005%2015%20EPA%20Docket%202017-0190%20Evaluation%20of%20Existing%20Regulations.pdf>>, pg. 33; Ohio EPA<http://www.csg.org/aapca_site/news/documents/OhioEPA13777Comments.pdf>, pg. 3

Unimplemented Recommendations from 2004 – 2006 Title V Task Force

* Sample comment: “In 2004, the Clean Air Act Advisory Committee (CAAAC) established a Task Force on Title V Implementation Experience.... U.S. EPA should examine this report and move forward with recommendations to provide the much needed improvement to the Title V permit system” – Ohio EPA, comments<http://www.csg.org/aapca_site/news/documents/OhioEPA13777Comments.pdf> on U.S. EPA’s Regulatory Reform, pg. 3

* Report: Title V Task Force, Final Report to the Clean Air Act Advisory Committee on the Title V Implementation Experience<https://www.epa.gov/sites/production/files/2014-10/documents/title5_taskforce_finalreport20060405.pdf>, April 2006.

Prevention of Significant Deterioration (PSD) permit review

* Sample comment: “Currently, Regional offices are reviewing each PSD permit application processed by the State. Typically, comments and suggestions from the region do not result in any modification of the proposed permit. Reviewing and responding to these minor comments and suggestions requires extra time from the permitting staff and often unnecessarily holds up timely issuance of the permits.” – AAPCA, comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA’s Regulatory Reform, pg. 6

Prevention of Significant Deterioration (PSD) modeling review

* Sample comment: “EPA Regional staff typically review each PSD modeling review. Often, the staff modelers are required to spend significant time in discussion with EPA regarding the modeling review or addressing comments, yet significant changes rarely result from these discussions.” – AAPCA, comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA’s Regulatory Reform, pg. 7

New Source Review (NSR) permitting

* Sample comment: “Specific suggestions to adjust NSR permitting include: removal of volatile organic compound (VOC) requirements in areas with oxides of nitrogen limits under New Source Review (NSR); modifications to PSD and NSR that consider environmentally beneficial projects; and providing a clean unit exemption.” – AAPCA, comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA’s Regulatory Reform, pg. 7

Title V Permitting Requirements for Air Curtain Incinerators/Destructors

* Sample comment: “Regulation with unnecessarily burdensome requirements for owners/operators.” – AAPCA<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf>, , pg. 4

* Other relevant comments: Arizona DEQ<http://www.csg.org/aapca_site/news/documents/arizonadeqregreform.pdf>, pg. 1; Georgia EPD<http://www.csg.org/aapca_site/news/documents/GeorgiaEPDCommentstoDocketIDNoEPA-HQ-OA-2017-0190.pdf>, pg. 1 – 2; Maine DEP<http://www.csg.org/aapca_site/news/documents/MaineDEPCommentforEO13777.pdf>, pg. 1, 3-5; North Carolina DAQ<<https://ncdenr.s3.amazonaws.com/s3fs-public/Air%20Quality/rules/letters/2017%2005%2015%20EPA%20Docket%202017-0190%20Evaluation%20of%20Existing%20Regulations.pdf>>, pg. 6-7; South Carolina DHEC<http://www.csg.org/aapca_site/news/documents/scdhecregreform.pdf>, pg. 2 – 3; ECOS<<https://www.ecos.org/wp-content/uploads/2017/05/ECOS-Comments-on-EO-13777.pdf>>, pg. 2; NESCAUM<<http://www.nescaum.org/documents/nescaum-comments-eo13777-reg-reform-20170515.pdf>>, pg. 2

Title V permitting requirements, as found in 40 CFR 70.3 and the National Emissions Standards for Hazardous Air Pollutants for Source Categories (40 CFR 63)

* Sample comment: “Overly burdensome and costly for area sources that are required to obtain and maintain Title V operating permits.” – AAPCA,

comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA's Regulatory Reform, pg. 4

* Other relevant comments: Arizona

DEQ<http://www.csg.org/aapca_site/news/documents/arizonadeqregreform.pdf>,

Attachment, pg. 2; Arkansas

DEQ<http://www.csg.org/aapca_site/news/documents/ADEQEvalofExistingRegs.pdf>, pg.

9; Maine

DEP<http://www.csg.org/aapca_site/news/documents/MaineDEPCommentforEO13777.pdf>, pg. 17; Nevada

DEP<http://www.csg.org/aapca_site/news/documents/NevadaDEPRegReform.pdf>, pg. 2;

South Carolina

DHEC<http://www.csg.org/aapca_site/news/documents/scdhecregreform.pdf>, pg. 2 – 3

Title V Annual Compliance Certifications

* Sample comment: "Title V Annual Compliance Certifications required by 40 CFR 70.6(c) are redundant to the reporting requirements contained elsewhere in the permit and unnecessarily burdensome. EPD spends approximately 1,000 staff hours annually reviewing the certifications." – Georgia EPD,

comments<http://www.csg.org/aapca_site/news/documents/GeorgiaEPDCommentstoDocketIDNoEPA-HQ-OA-2017-0190.pdf> on U.S. EPA's Regulatory Reform, pg. 3

Revisions to the Public Notice Provisions in Clean Air Act Permitting Programs

* Sample comment: "Air agencies provided comment on this proposal, and there may be other areas in which EPA should explore electronic notice options." – AAPCA, comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA's Regulatory Reform, pg. 4

* See AAPCA member comments on the proposed revisions: Georgia

EPD<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0012>>;

Kentucky DAQ; <<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0023>>

Ohio EPA<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0024>>;

South Carolina DHEC<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0021>>;

Texas CEQ<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0010>>;

Virginia DEQ<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0015>>;

Wyoming DEQ<<https://www.regulations.gov/document?D=EPA-HQ-OAR-2015-0090-0031>>

"Once In, Always In" Policy for Major Source Maximum Available Control Technology Standards

* Sample comment: "The current policy requires sources that are subject to a major source MACT to always be subject to that MACT standard, even if their emissions are later reduced below major source levels of HAPs, limiting the incentive for industry to reduce emissions or find alternative materials." – AAPCA,

comments<http://www.csg.org/aapca_site/documents/AAPCA-EPARegulatoryReform-DocketIDEPA-HQ-OA-2017-0190-5-15-17.pdf> on U.S. EPA's Regulatory Reform, pg. 4

* Other relevant comments: Arizona

DEQ<http://www.csg.org/aapca_site/news/documents/arizonadeqregreform.pdf>,

Attachment (pg. 1); Georgia

EPD<http://www.csg.org/aapca_site/news/documents/GeorgiaEPDCommentstoDocketIDNoEPA-HQ-OA-2017-0190.pdf>, pg. 1; Maine

DEP<http://www.csg.org/aapca_site/news/documents/MaineDEPCommentforEO13777.pdf>,

pg. 1, 3 – 5; North Carolina DAQ<<https://ncdenr.s3.amazonaws.com/s3fs-public/Air%20Quality/rules/letters/2017%2005%2015%20EPA%20Docket%202017-0190%20Evaluation%20of%20Existing%20Regulations.pdf>>, pg. 36; Ohio

EPA<http://www.csg.org/aapca_site/news/documents/OhioEPA13777Comments.pdf>, pg. 6 – 7

NAAQS Implementation / Permit Grandfathering

See relevant comments from AAPCA members on:

* U.S. EPA's proposed Implementation Rule for the 2015 Ozone NAAQS: Arizona

DEQ<http://www.csg.org/aapca_site/news/documents/ArizonaDEQ2-13-17.pdf>; Georgia

EPD<http://www.csg.org/aapca_site/news/documents/GeorgiaDNR-2-03-2017.pdf>;

Kentucky DEP<http://www.csg.org/aapca_site/news/documents/KentuckyDAQ-2-13-2017.pdf>; Ohio EPA<http://www.csg.org/aapca_site/news/documents/OhioEPA-2-13-2017.pdf>; Nevada DEP<http://www.csg.org/aapca_site/news/documents/NevadaDEP-2-09-2017.pdf>; North Carolina

DEQ<http://www.csg.org/aapca_site/news/documents/NorthCarolinaDEQ-2-13-2017.pdf>; South Carolina

DHEC<http://www.csg.org/aapca_site/news/documents/SouthCarolinaDHEC-2-03-2017.pdf>; Texas CEQ<http://www.csg.org/aapca_site/news/documents/TexasCEQ-2-13-2017.pdf>; Virginia DEQ<http://www.csg.org/aapca_site/news/documents/VirginiaDEQ-2-09-2017.pdf>; Wyoming

DEQ<http://www.csg.org/aapca_site/news/documents/WyomingDEQ-2-13-2017.pdf>

* U.S. EPA's proposed 2015 Ozone NAAQS: Alabama

DEM<http://www.csg.org/aapca_site/news/documents/AlabamaDEMCommentsontheProposedRulefortheNat

HQ-OA.pdf>; Florida

DEP<http://www.csg.org/aapca_site/news/documents/FL_DEPEPAComment31715.pdf>;

Georgia

EPD<http://www.csg.org/aapca_site/news/documents/GeorgiaEPD_Comment_on_2015_ozone_FINAL.pdf>;

Indiana

DEM<http://www.csg.org/aapca_site/news/documents/Revised2008OzoneStandardCommentsLetter-Indiana.pdf>; Kentucky

DEP<http://www.csg.org/aapca_site/news/documents/KentuckyOzoneProposedRuleComments20143-16-15.pdf>; Louisiana DEQ<http://www.csg.org/aapca_site/news/documents/LDEQ.pdf>;

Mississippi

DEQ<http://www.csg.org/aapca_site/news/documents/MississippiDEQComment.pdf>;

Nevada DEP<http://www.csg.org/aapca_site/news/documents/NevadaDEP.pdf>; North

Carolina DAQ<<http://www.regulations.gov/>>; North Dakota

DAQ<http://www.csg.org/aapca_site/news/documents/NDDHComments3-17-15.pdf>;

Ohio EPA<http://www.csg.org/aapca_site/news/documents/OEPA_LetterComments.pdf>

(Appendices A-F<http://www.csg.org/aapca_site/news/documents/OEPA_AppendicesA-F.pdf> and G-I<http://www.csg.org/aapca_site/news/documents/OEPA_AppendicesG-I.pdf>); South Carolina

DHEC<http://www.csg.org/aapca_site/news/documents/SouthCarolinaDHECOzone.pdf>;
Tennessee DAPC<<http://www.regulations.gov/>>; Texas
CEQ<http://www.csg.org/aapca_site/news/documents/TCEQO3compiledcomments31715.pdf>;
Virginia DEQ<<http://www.regulations.gov/>>; West Virginia
DAQ<http://www.csg.org/aapca_site/news/documents/WVDEPProposedOzoneNAAQSComments2015-03-17-Docket-EPA-HQ-OAR-2008-0699.pdf>; Wyoming
AQD<http://www.csg.org/aapca_site/news/documents/Wyoming_3-17-15_DEQComment_2015OzoneNAAQSProposedRule.pdf>

4. U.S. EPA update on Draft Title V Fee Guidance Documents (Feedback due September 20)

- * “Program and Fee Evaluation Strategy and Guidance for 40 CFR Part 70<http://www.csg.org/aapca_site/news/documents/DraftTitleVEvaluationGuidance8-17-17withwatermark.pdf>” (Title V Evaluation Guidance)
- * “Updated Guidance on EPA Review of Fee Schedules for Operating Permit Programs under Title V<http://www.csg.org/aapca_site/news/documents/DraftTitleVFeeScheduleGuidance8-17-17withWatermark.pdf>” (Updated Fee Schedule Guidance)

5. Other Questions and Comments

6. Adjourn

*Background Information:

- * Presidential Memorandum: Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing<<https://www.whitehouse.gov/the-press-office/2017/01/24/presidential-memorandum-streamlining-permitting-and-reducing-regulatory>> (January 24, 2017);
- * In March 2017, the U.S. Department of Commerce issued a request for information<<https://www.regulations.gov/document?D=DOC-2017-0001-0001>>, “Impact of Federal Regulations on Domestic Manufacturing.”;
- * Relevant Executive Orders: EO 13766: Expediting Environmental Reviews and Approvals For High Priority Infrastructure Projects<<https://www.whitehouse.gov/the-press-office/2017/01/24/executive-order-expediting-environmental-reviews-and-approvals-high>> (1/24/17); EO 13771: Reducing Regulation and Controlling Regulatory Costs<<https://www.whitehouse.gov/the-press-office/2017/01/30/presidential-executive-order-reducing-regulation-and-controlling>> (1/30/17); EO 13777: Enforcing the Regulatory Reform Agenda<<https://www.whitehouse.gov/the-press-office/2017/02/24/presidential-executive-order-enforcing-regulatory-reform-agenda>> (2/24/17); EO 13783: Promoting Energy Independence and Economic Growth<<https://www.whitehouse.gov/the-press-office/2017/03/28/presidential-executive-order-promoting-energy-independence-and-economi-1>> (3/28/17); and, EO 13807: Establishing Discipline and Accountability in the Environmental Review and Permitting Process for

Infrastructure<<https://www.whitehouse.gov/the-press-office/2017/08/15/presidential-executive-order-establishing-discipline-and-accountability>> (8/15/17).

To: Rao, Raj[Rao.Raj@epa.gov]; Keller, Peter[keller.peter@epa.gov]
From: Gary McCutchen
Sent: Thur 1/26/2017 3:56:05 PM
Subject: FW: ELR Article by Holmstead et.al.
[ELR article.pdf](#)

In case you haven't already seen it...

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From: Gurinder (Gary) Saini
Sent: Thursday, January 26, 2017 8:44 AM
To: Colin Campbell
Cc: Gary McCutchen; Lynn Hutchinson
Subject: ELR Article by Holmstead et.al.

Here is the article...

Regards

GS

Ex. 6

ARTICLES

EPA's New Source Review Program: Time for Reform?

by Art Fraas, John D. Graham,
and Jeff Holmstead

Art Fraas is a Visiting Fellow at Resources for the Future; John D. Graham is Dean of the Indiana University School of Public and Environmental Affairs; and Jeff Holmstead is a Partner in Bracewell LLP.

Summary

This Article examines the complex CAA program known as new source review (NSR), which affects virtually every major manufacturing facility and power plant in the United States. The NSR program provides important health and environmental benefits but has become a significant impediment to the growth and modernization of the U.S. manufacturing sector. Because of a new, more stringent air quality standard for ozone, the resulting changes in the NSR program may effectively prevent industrial development in some parts of the country. The authors propose administrative reforms that EPA could take to address some of the major concerns about NSR while still maintaining the environmental benefits of the program: (1) replace current deterministic, upper-bound modeling requirements with a probabilistic approach to air quality modeling; (2) expand the pool of emission reduction credits that may be used to offset emissions from new or expanded facilities; and (3) take actions to facilitate NSR permitting when there are changes to national ambient air quality standards. The authors also offer two potential statutory reforms.

The administrations of both George W. Bush and Barack Obama recognized that manufacturing is one of the most heavily regulated sectors in the U.S. economy. Since 1981, manufacturers have become subject to more than 2,200 unique regulations, almost one-half attributable to one federal agency, the U.S. Environmental Protection Agency (EPA).¹ Both administrations also sought to streamline existing federal regulations that apply to the manufacturing sector in order to reduce economic burdens that threaten the competitiveness of U.S. manufacturing. However, a recent report by the Regulatory Studies Center at George Washington University found that the retrospective reviews of manufacturing regulations under both presidential administrations have had limited impact. Indeed, some of the retrospective reviews appear to have led to greater rather than diminished regulatory burdens.²

EPA's new source review (NSR) program is of special interest because it affects virtually every major manufacturing facility and power plant in the United States—and any company that might want to build such a facility in the future.³ In this Article, we discuss the major concerns about the NSR program that have been raised by industry and the policy community, and also highlight the expanding burdens of the program resulting from increasingly stringent national ambient air quality standards (NAAQS). However, since the NSR program is also recognized as a source of significant environmental benefits, the simple option of deregulation does not seem to be particularly promising. We argue that creative regulatory reforms can accomplish most or all of the anticipated environmental benefits at considerably reduced cost to the regulated industry and the U.S. economy.

Authors' Note: This Article was originally prepared as a working paper by Art Fraas and John Graham for discussion among academics and industry professionals at a workshop at Indiana University on October 29, 2015, in Indianapolis, Indiana. Financial support was provided to the two working paper authors by Indiana University through funds raised from individual philanthropists interested in a revival of U.S. manufacturing. We are grateful for the comments provided on earlier drafts by Lynn Hutchinson and Nathan Richardson and the research assistance of James (Hunter) Odom. The views expressed are entirely those of the authors.

1. PAUL BERNSTEIN ET AL., *MACROECONOMIC IMPACTS OF FEDERAL REGULATION OF THE MANUFACTURING SECTOR* (NERA Economic Consulting & Manufacturers Alliance for Productivity and Innovation 2012).
2. Sofie Miller, *EPA's Retrospective Review of Regulations: Will It Reduce Manufacturing Burdens?*, 14 *ENGAGE* 4-14 (2013), available at <http://www.fed-soc.org/publications/detail/epas-retrospective-review-of-regulations-will-it-reduce-manufacturing-burdens>.
3. NATIONAL RESEARCH COUNCIL, *NEW SOURCE REVIEW FOR STATIONARY SOURCES OF AIR POLLUTION* 68-76 (2006).

We start with a brief summary of certain key features of the Clean Air Act (CAA) and a brief discussion of how the NSR program fits within the structure of the Act. We then identify aspects of the current NSR regulatory approach that are likely to impose increasing costs on manufacturers in the near future. We propose options for regulatory reform that are designed to streamline and modernize regulatory requirements and reduce regulatory costs, while still allowing the regulatory program to achieve significant environmental results. We recognize that reforms that can be adopted through executive action are more likely to occur than those that require new legislation by the U.S. Congress, but we also outline two variants of a potentially promising legislative reform that could replace the existing case-by-case NSR review process with a system of economic incentives.

I. Background

A. NAAQS

The CAA requires that EPA establish NAAQS for certain pollutants known as “criteria pollutants”: pollutants that come from a variety of sources, are widespread in many geographic areas, and “reasonably may be expected to endanger public health or welfare.”⁴ EPA has identified and set NAAQS for six such pollutants, including ozone and particulate matter (PM). The statutory language requires primary health-based NAAQS to be set at levels “which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.”⁵ This requirement has yielded an underlying health science based on an increasingly sophisticated set of studies focused on sensitive subpopulations and more subtle health endpoints.

The CAA also requires EPA review of NAAQS every five years.⁶ Although EPA has not been able to meet the five-year deadline in recent years, environmental groups have used litigation effectively to force EPA into what amounts to almost continuous review of NAAQS, especially NAAQS for ozone and PM. The result has been a series of more stringent standards over the past decade. And given the focus on sensitive subpopulations and more subtle health effects, it appears likely that there will be continuing pressure to ratchet down NAAQS even further in future years.

Since 2009, EPA has set more stringent NAAQS for four of the six criteria pollutants: nitrogen dioxide (NO₂), sulfur dioxide (SO₂), PM, and ozone. These NAAQS impose substantial costs on the U.S. economy and, in particular, on the manufacturing sector. For the recently revised ozone NAAQS, for example, EPA estimated annual costs of \$1.4 billion (not including the cost in California, which faces a particularly difficult challenge in reducing ozone levels), but some experts believe that the cost will be much higher.

Some major metropolitan areas such as Los Angeles, Houston, and the East Coast megalopolis have had a continuous classification as “nonattainment” (NA) for the ozone and fine PM NAAQS.⁷ These areas face continuing pressure to reduce emissions from the transportation and manufacturing sectors and severe restrictions on the siting of major new sources. Other large cities find that, with the lowering of NAAQS, they are in NA again (after spending years to meet an earlier standard) and must adopt even more stringent emissions controls for their manufacturing, commercial, and transportation sources.⁸ In addition, as discussed below, the continuing ratcheting downward of NAAQS is making it increasingly difficult to site major new manufacturing sources.

Studies of the historical effect of the CAA on economic activity report significant economic costs in NA areas.⁹ For example, Michael Greenstone estimated that, as compared to attainment counties in the United States, NA counties lost \$37 billion in capital, \$75 billion of economic production (in 1987 dollars), and 590,000 jobs during the period from 1972 to 1987.¹⁰ In a more recent study, Greenstone et al. estimated a significant decline in total factor productivity for pollutant-intensive plants in NA areas.¹¹ They report that this decline in productivity translates into a loss of

4. 42 U.S.C. §§7401-7671q, §7408; ELR STAT. CAA §§101-618, §108.

5. 42 U.S.C. §7209. Secondary standards are required to protect welfare; EPA has generally set welfare standards at the same level as the primary health NAAQS.

6. *Id.*

7. While classified as nonattainment areas, the air quality in these areas is better than the NAAQS for a significant number of days in the year.

8. To be sure, additional health and welfare benefits are associated with more stringent NAAQS. In the case of ozone, EPA estimates that benefits increase significantly with successively more stringent standards. And even net benefits (benefits minus costs) arguably increase with the more stringent ozone standards. This result is largely driven on the benefit side by the substantial additional reductions in premature mortality with successively more stringent ozone NAAQS. On the cost side, EPA assumes that the cost of needed emissions reductions will be capped at \$15,000 per ton, arguing that technological innovation and the ability of states and local governments to delay unreasonably costly measures will mitigate the cost of NAAQS.

9. Michael Greenstone, *The Impacts of Environmental Regulations on Industrial Activity: Evidence From the 1970 and 1977 Clean Air Act Amendments and the Census of Manufactures*, 110 J. POL. ECON. 1175-1219 (2002); J. Vernon Henderson, *Effects of Air Quality Regulation*, 86 AM. ECON. REV. 789-813 (1996). John A. List et al., *Effects of Environmental Regulations on Manufacturing Plant Births: Evidence From a Propensity Score Matching Estimator*, 85 REV. ECON. & STAT. 944-52 (2003).

10. Greenstone, *supra* note 9, at 1176.

11. MICHAEL GREENSTONE ET AL., *THE EFFECTS OF ENVIRONMENTAL REGULATION ON THE COMPETITIVENESS OF U.S. MANUFACTURING* (NBER Working Paper Series No. 18392, National Bureau of Economic Research 2012), available at <http://www.nber.org/papers/w18392.pdf>.

\$450 billion for manufacturing plants in NA areas during the 1972 to 1993 period of study.¹²

While these studies suggest a substantial shift of pollution-intensive industry away from NA areas in the United States, these studies may simply reflect a shift of activity within the United States from NA areas to attainment areas. In other words, although the CAA has clearly imposed significant economic costs on NA areas, it may have created commensurate economic gains in manufacturing activity and employment in attainment areas.

Unfortunately, relatively few studies in the economic literature evaluate the effect of environmental regulation on the competitiveness of the U.S. manufacturing sector as a whole. A variety of other factors likely play an important—even dominant—role in decisions on whether to locate in the United States versus another country. These factors include, for example, access to (and cost of) important factors of production, transportation costs, existing investment in facilities and infrastructure, tax considerations, and exchange rate effects.

Any empirical evaluation of the effect of environmental regulations is difficult to do because it must account for these other factors in teasing out any regulatory effect. Only a few studies have attempted to do it. This limited empirical literature suggests that environmental regulation has been a relatively minor factor in decisions as to whether manufacturing plants will be located in the United States or another country.¹³ On the basis of this limited set of studies, Joseph Aldy and William Pizer have suggested that the adverse effect of CAA requirements in shifting economic activity and jobs away from NA areas to “clean” areas within the United States has been more important than the effects in terms of forcing this economic activity offshore to countries with less stringent environmental requirements.¹⁴

However, these economic studies have looked at the past history of the CAA in the decades before 2000. With the substantial tightening of NAAQS in more recent years, the difficulty of siting or expanding major manufacturing facilities in the United States may have created a more significant incentive to shift industrial activity to other countries with less burdensome regulatory requirements.

B. New Source Review

The CAA requires that, before a company can construct a new industrial facility or expand an existing facility in the United States, it must first go through the NSR permit-

ting process and obtain a permit that, among other things, ensures that the new or expanded facility will employ up-to-date pollution control technology. The NSR program creates somewhat different requirements depending on whether the facility is located in an attainment area (an area that meets NAAQS or is unclassifiable due to the lack of data) or an NA area (an area that does not meet the NAAQS).

In NA areas, new plants and major modifications to existing plants are required to meet the lowest achievable emission rate (LAER), meaning that the plants must install state-of-the-art pollution controls in order to match or exceed the emission rate achieved by the lowest-emitting similar facility in the country. In addition, they must obtain pollution “offsets” from other facilities in the same area. These requirements reportedly make it difficult or even impossible to site new plants in certain NA areas.¹⁵

In particular, discussions with industry sources suggest that the cost of emissions offsets effectively prohibits the siting of major new industrial plants in certain NA areas. The idea behind offsets is that, in order to build a new industrial facility in an NA area, a company must pay someone else to reduce emissions in that same area by an amount that exceeds the emissions that will come from the new facility. Depending on the area, it must obtain offsets that are between 10% and 50% greater than the projected emissions from the new facility.

Not surprisingly, offsets cannot be created on the basis of actions already required by EPA or state regulations. To be counted as an offset, an emissions reduction must go beyond what is required by law. But for more than 40 years, EPA and states have been looking for every conceivable way to reduce emissions related to ozone. In many areas, all the cost-effective emissions reductions have been mandated by regulation. Where any reductions can be made, they are very expensive.

For example, the Houston area, especially near the Houston Ship Channel, has numerous industrial facilities, but they are generally well-controlled. Because there is so much industry, it is possible to purchase offsets, but they are very expensive. Houston-area offset prices vary from \$150,000 to \$200,000 per ton for volatile organic compounds (VOCs) and \$80,000 to \$100,000 per ton for nitrogen oxide (NO_x).¹⁶ Even a relatively small facility with state-of-the-art controls will emit more than 100 tons per year of these pollutants. The so-called “offset ratio” in the Houston area is 1.4 to 1, meaning that the new facility would need to offset 140% of its projected emissions. Thus, even if the new facility will emit only 100 tons per year of NO_x and VOCs, the company trying to build it

12. GREENSTONE ET AL., *supra* note 11, at 2.

13. Adam B. Jaffe et al., *Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?*, 33 J. ECON. LITERATURE 132-63 (1995); Arik Levinson & M. Scott Taylor, *Unmasking the Pollution Haven Effect*, 49 INT'L ECON. REV. 223-54 (2008).

14. JOSEPH E. ALDY & WILLIAM A. PIZER, *THE COMPETITIVENESS IMPACTS OF CLIMATE CHANGE MITIGATION POLICIES* (NBER Working Paper 17705, 2011), available at <http://www.nber.org/papers/w17705>. See also Bruce G. Carruthers & Naomi R. Lamoreaux, *Regulatory Races: The Effects of Jurisdictional Competition on Regulatory Standards*, 54 J. ECON. LITERATURE 52-97 (2016).

15. Existing plants in these areas may also find it difficult to make major modifications.

16. MIKE TAYLOR, *UPDATE ON SCARCITY OF HOUSTON-GALVESTON-BRAZORIA (HGB) EMISSION REDUCTION CREDITS (ERCs) AND ALLOWANCES, AND USE OF NO_x ERCs FOR VOC ERCs* (2014), available at <http://www.awma-gcc.org/docs/Sept2014Presn.pdf>; TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ), *TRADE REPORT* (2015), available at www.tceq.texas.gov/assets/public/implementation/air/banking/reports/ecrtradereport.pdf.

would need to purchase 140 tons of NO_x offsets and 140 tons of VOC offsets. At current offset prices, this means an upfront cost of \$32 million to \$52 million just to purchase emissions offsets.

In the South Coast NA area in California, average offset prices in 2014 were \$23,500 per ton for VOCs and \$63,000 per ton for NO_x.¹⁷ Table 1 provides reported prices and quantities for major areas in California. In addition, the quantities involved in these emissions offset transactions

Table 1. 2014 California Offset Prices for Emission Reduction Credits (\$/ton)

	VOC (\$/ton)	VOC (tons)	NO _x (\$/ton)	NO _x (tons)
Bay Area	\$1,200-\$9,500 [\$6,196]	212	\$14,500-\$15,000 [\$14,643]	73
San Joaquin	\$900-\$6,000 [\$3,877]	255	\$18,000-\$44,000 [\$36,519]	177
Santa Barbara	\$125,000	0.06	\$125,000	0.56
South Coast	\$7,400-\$32,880 [\$23,462]	26	\$63,014	5.5
Ventura	\$15,000-\$70,000 [\$50,938]	21		

Source: CALIFORNIA AIR RESOURCES BOARD (CARB), EMISSION REDUCTION OFFSET TRANSACTION COSTS: SUMMARY REPORT FOR 2014 (2015), available at <http://www.arb.ca.gov/nsr/erco/erc14.pdf>.

Brackets denote average (mean) price.

are relatively small compared with the emissions from a new major source coming into an NA area.¹⁸ If the applicant does not have a facility in the NA area that it can readily control (or tear down) to provide offsets, then emissions offsets for five or more years in the future are reportedly hard or even impossible to find.

More stringent NAAQS standards will also have an important effect on the siting of new sources in attainment areas. Under the “prevention of significant deterioration” (PSD) provisions of the CAA, new plants and major modifications in attainment areas must also go through a pre-construction permitting process. This process requires that these plants:

- Adopt the best available control technology (BACT) to control all pollutants (not just criteria pollutants) that are regulated under the CAA. BACT is sometimes no different from LAER but may be less stringent, and less costly, for certain types of facilities.
- Provide an analysis of the effect of anticipated plant emissions on ambient air quality, including both pre-construction monitoring of air quality in the area and air quality modeling of the effect of the plant emissions on ambient air quality.

To obtain a permit, the permit applicant must show, to the satisfaction of the permitting authority (generally the state environmental agency), that (1) projected emissions from the new plant will not result in changes in ambient air quality that would cause the area to exceed NAAQS

for any pollutant; and (2) even if projected emissions will not violate NAAQS, they will not result in an increase in ambient concentrations of any pollutant that exceeds the allowable PSD “increments” set by the CAA.¹⁹

The requirement to show that emissions from a new facility will not “cause or contribute” to a violation of any NAAQS will be more challenging now that the ozone standard has been lowered from 75 to 70 parts per billion (ppb), because many areas of the country that have always

been in attainment do not meet the new standard. Until these areas are designated as NA areas, a permit applicant would need to show that the proposed plant will not “contribute to” a violation of the new standard, which would appear to be impossible in or near areas that are already in violation of the standard. EPA has

said that it intends to create at least two options that would address this concern: (1) by setting certain de minimis emissions thresholds below which a new facility would be deemed not to “contribute” to a violation of the NAAQS; or (2) by allowing the permit applicant to purchase offsets.

Given the history of CAA regulation, it is likely that these options, when finalized by EPA, will be challenged in court. Even if they pass muster in the courts, it remains to be seen whether either of these options will be practically viable—especially for large industrial facilities.²⁰ If not, it will not be possible to build or expand a new industrial facility in certain areas, even if the facility would use state-of-the-art technology to control its emissions and even if the local community desperately wants it to be built.

II. Analyses of the NSR Program

A. Costs of the NSR Process and Permitting Delays

In a 2001 report on NSR, EPA observed that the permit application process can involve up to five different stages: preparation of a permit application; agency determination of application “completeness” (a process that may include extensive discussion between the applicant and permitting officials and the preparation and submission of additional information); public notice and comment on a draft

17. CALIFORNIA AIR RESOURCES BOARD, EMISSION REDUCTION OFFSET TRANSACTION COSTS: SUMMARY REPORT FOR 2014 (2015), available at <http://www.arb.ca.gov/nsr/erco/erc14.pdf>.

18. NSR generally applies to sources emitting 100 tons/year of a precursor ozone pollutant.

19. The CAA established PSD increments for PM and SO₂ for the three classes of attainment areas: Class I (pristine), Class II (intermediate), and Class III (growth). EPA has established PSD increments for the other conventional pollutants through rulemaking.

20. For example, it appears that a number of rural areas may exceed the new 70 ppb ozone standard—not because of local emissions, but because of background ozone and pollution transported from distant sources. Some areas have no local stationary sources and thus no way to generate offsets that can be used by new plants. In such cases, the offset requirement will impose a de facto ban on most types of industrial development.

permit; issuance of a final permit along with response to comments; and administrative and judicial appeals.²¹ This same report notes that “most developers describe [NSR] permitting as an extremely complex and time-consuming process.”²² A recent comment filed by an industry coalition stated: “Sources generally invest years in engineering, design and assessment studies before submitting a permit application for a major source. Even under optimistic conditions, it can take at least two years from the beginning of the frontend engineering work until public notice of the draft permit is published.”²³

The NSR process imposes direct costs in terms of the time and resources required to prepare the permit application and to provide responses to questions and issues that arise in the permitting process. The uncertainty and delay that attend the permitting process may impose additional costs, including financial costs and penalties.²⁴ The opportunity costs associated with delays or cancellation of projects include the additional production forgone and, in some cases, forgone emissions reductions from retrofitted facilities. In addition, the potential for long delays and the uncertainty that attends the NSR process could lead to suboptimal decisions in upgrading existing capacity and installing new capacity.²⁵

Some economists and industry representatives have argued that the focus of NSR on preconstruction review of new or modified plants, and the attendant significant costs associated with the NSR program, have penalized the construction of new plants and the retrofit of existing plants—resulting in a “new source bias.”²⁶ Thus, it has arguably been more economic in some cases to continue to operate relatively old, inefficient, and high-polluting plants than to

install new facilities or upgrade existing facilities with better pollutant control technology.²⁷ To the extent this has occurred, NSR review has had the perverse effect of delaying reductions in pollutants such as SO₂ and NO_x.²⁸

B. The Time Needed to Obtain an NSR Permit

Under the CAA, EPA and other permitting agencies are required to either grant or deny an NSR permit within one year of receiving a permit application, but there is no practical way to enforce this deadline, and the permitting process often takes longer—sometimes much longer—than a year. A 2015 Resources for the Future discussion paper provides a snapshot of the NSR process from the date EPA or state authorities notify applicants that the NSR application is complete to the issuance of the final permit.²⁹ During the period from 2002 to 2014, the nationwide average time to obtain an NSR permit for coal- and natural gas-fired electric generating units (EGUs) and refineries was roughly 14 months.³⁰ This represents a substantial increase in average processing time for NSR permits compared with the reported permitting times for the 1997-2001 period. The distributions are skewed—median values are less than the mean—with some projects requiring substantially longer to obtain NSR approval.³¹ In addition, there was a significant variation across EPA regions in the processing time required for approval of new natural gas-fired EGUs—from seven months for Region 7 (Iowa, Kansas, Mississippi, and Nebraska) to 19 months for Region 9 (Arizona, California, and Nevada).

The data also show substantial year-to-year variation in processing times, with markedly longer processing times during the 2003-2005 and 2009-2011 periods (Table 2). The increase in permitting time during the 2003-2005 period may reflect the uncertainty in the NSR program

21. U.S. EPA, NSR 90-DAY REVIEW BACKGROUND PAPER 5 (2001).

22. *Id.* at 11.

23. SHANNON BROOME & BOB MOREHOUSE, COMMENTS OF THE AIR PERMITTING FORUM: NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OZONE (2015), available at <https://www.regulations.gov/#!documentDetail;D=EPA-HQ-OAR-2008-0699-3578>.

24. U.S. EPA, *supra* note 21, at 11. “Permitting (including required public hearings and comment processes) can be costly not only because of the time and human resources involved, but also because of uncertainty and delay.” “Delay, for example, can cause a developer to miss advantageous financial circumstances when interest and equity costs are low.” *Id.* at 11. In addition, the applicants may have penalty clauses associated with delays in the start of construction in their contracts with engineering and construction firms. According to industry sources, these penalties can be as much as \$35,000 to \$40,000 per day.

25. These time-cost considerations may be particularly important in the petroleum refining industry, where the National Petroleum Council claims that “the most critical factor in the U.S. refining industry’s ability to meet new fuel requirements in a timely manner is the ability to obtain permits.” *Id.* at 44. ARCHIE W. DUNHAM ET AL., U.S. PETROLEUM REFINING: ASSESSING THE ADEQUACY AND AFFORDABILITY OF CLEANER FUELS (National Petroleum Council 2000). EPA’s 2001 background report also cites statements by several oil company executives claiming that the NSR process impedes the U.S. refinery industry’s capacity to expand. See U.S. EPA, *supra* note 21, at 44.

26. Howard K. Gruenspecht & Robert N. Stavins, *New Source Review Under the Clean Air Act: Ripe for Review*, 147 RESOURCES 19, 20-21 (2002). See also U.S. EPA, *supra* note 21, at 18, 29. The direct costs to add pollution controls at existing facilities are often significantly greater than the corresponding control cost for a new plant, because pollution controls can be incorporated in the initial design of a new facility, whereas compatibility problems and space constraints at existing facilities often complicate the retrofit of controls at these facilities.

27. EPA’s 2001 NSR report found some evidence to support this argument, reporting that NSR for existing sources “has impeded or resulted in the cancellation of projects which would maintain and improve reliability, efficiency, and safety of existing energy capacity.” U.S. EPA, NEW SOURCE REVIEW: REPORT TO THE PRESIDENT 1 (2002), available at https://www.epa.gov/sites/production/files/2015-08/documents/nsr_report_to_president.pdf (cited by NATIONAL ACADEMY OF SCIENCES, NEW SOURCE REVIEW FOR STATIONARY SOURCES OF AIR POLLUTION 45 (National Academies Press 2006)).

28. U.S. EPA, *Clean Air Act Requirements and History*, <https://www.epa.gov/clean-air-act-overview/clean-air-act-requirements-and-history> (last visited Nov 15, 2016). To be sure, supporters of the current NSR program argue that NSR review yields important reductions in the covered pollutants. For example, EPA’s 2001 NSR report estimated that PSD BACT permitting during 1997-1999 avoided 1.4 million tons per year in conventional pollutant emissions (largely reductions in SO₂ and NO_x emissions). U.S. EPA, *supra* note 21, at 8. See also RICHARD L. REVESZ & JACK LIENKE, STRUGGLING FOR AIR: POWER PLANTS AND THE “WAR ON COAL” (Oxford University Press 2016).

29. ARTHUR FRAAS ET AL., EPA’S NEW SOURCE REVIEW PROGRAM: EVIDENCE ON PROCESSING TIME (Resources for the Future 2015).

30. The difference in processing times between NA and attainment areas was small and not statistically significant. These data are taken from EPA’s RACT/BACT/LAER Clearinghouse (RBLC). EPA staff believe only one-half of the approved NSR projects are reported to the RBLC database.

31. However, the clearinghouse database had few entries for new plants in recent years—only one additional NSR permit for a new coal-fired plant in 2012 and no additional permits for coal-fired plants in 2013 and 2014.

due to the U.S. Court of Appeals for the District of Columbia (D.C.) Circuit review of EPA's 2002 and 2003 revisions to the program.³² The longer processing times during the 2009-2011 period may reflect a transition as the Obama Administration put its climate policy in place (meaning that sources for the first time had to use BACT to control their carbon dioxide emissions) and as sources faced new air quality modeling requirements with EPA's revision of the NO₂, SO₂, and fine PM NAAQS. During the 2010-2014 period, for example, one-third of the combined cycle plants received NSR permits after processing delays by the state or EPA permitting authorities ranging from more than one year—the statutory deadline for action—to three years.³³

III. Historical Concerns About the NSR Program

A. Delays Caused by Regulatory Overlap

For NSR, several different layers of government are likely to be involved. Where EPA has approved the state implementation plan (SIP) provisions for NSR, the state is the primary permitting authority. However, under EPA regulations, EPA retains authority over air quality modeling, and the states may be required to consult with the EPA region (and EPA headquarters in some cases) on modeling issues.³⁴

In states that have not obtained EPA SIP approval for their NSR process, EPA is the permitting authority. In most of these states, EPA has delegated the NSR process

Table 2. Average Permitting Time for Natural Gas EGUs (Including PSD and NA Areas)

Year	All natural gas		New permits		Additions		Modifications	
	Mean	Number	Mean	Number	Mean	Number	Mean	Number
2002	321	73	324	47	299	25	769	1
2003	379	64	362	36	406	27	267	1
2004	612	46	521	27	829	13	551	6
2005	463	27	665	15	124	3	241	9
2006	290	23	355	6	286	11	231	6
2007	343	24	371	16	393	3	223	5
2008	377	21	384	3	715	4	278	14
2009	409	33	439	25	364	5	233	3
2010	468	24	554	14	372	5	321	5
2011	436	21	587	8	415	5	297	8
2012	268	31	245	14	223	11	403	6
2013	225	26	270	11	228	7	161	8
2014	235	3	—	0	—	0	235	3
Average	384	416	411	222	391	119	293	75

to the states (meaning that state officials take the administrative steps to process permit applications) but retains ultimate permitting authority and must be consulted on all substantive issues, including modeling, the selection of BACT, emissions limits, and monitoring and record-keeping requirements. In a relatively few cases, a state has refused to do NSR for one or more pollutants, and in these cases, EPA issues the NSR permit.³⁵

B. Changes in NAAQS: Problems in Transition and Lack of Timely EPA Guidance

The recent changes in the NO₂, SO₂, fine PM, and ozone NAAQS have further complicated the NSR process, resulting in permitting delays and, in some cases, the decision by industry to defer or cancel projects.³⁶ New or revised NAAQS must be addressed immediately in the NSR permit process, even before EPA makes formal designations as to which areas of the country are in attainment or NA with the new standard.³⁷

As a result, the new NAAQS can have an immediate impact on pending permit applications.³⁸ Even if a permit

32. The D.C. Circuit largely upheld EPA's 2002 revisions to its NSR program in June 2005. *New York v. Environmental Prot. Agency*, 413 F.3d 3, 35 ELR 20135 (D.C. Cir. 2005). On Dec. 24, 2003, however, the D.C. Circuit blocked the 2003 NSR rule revising the routine maintenance, repair, and replacement provisions from going into effect until the court reached a final decision. In *New York II*, the D.C. Circuit held that the 2003 NSR revision was invalid. *New York v. Environmental Prot. Agency*, 443 F.3d 880, 36 ELR 20056 (D.C. Cir. 2006).

33. Section 165(c) of the CAA requires completion of NSR within one year of the completeness determination. Combined cycle EGUs are the "cream of the crop" in terms of low-cost, efficient, clean generation of electricity. ARTHUR FRAAS ET AL., *supra* note 29, at 2. See also ARTHUR FRAAS & JOHN D. GRAHAM, REGULATORY REFORMS TO NURTURE THE RESURGENCE OF THE US MANUFACTURING SECTOR 20 (working paper 2015), <https://spea.indiana.edu/doc/research/manufacturing-initiative/fraas-graham-2015.pdf>.

34. 40 C.F.R. §51 app. W (2005).

35. For example, EPA issued NSR permits for greenhouse gas emissions in Texas from 2010-2014, while the TCEQ issued NSR permits for the other regulated NSR pollutants.

36. For example, the Baton Rouge Area Chamber reported that four major industrial projects were either put on hold or redirected to another location after EPA proposed to revise the ozone NAAQS in December 2015. Baton Rouge has monitored ozone levels of 72 ppb, a level above EPA's revised standard of 70 ppb. Baton Rouge Area Chamber, BRAC Public Policy Commentary: Eighteen of Twenty Top-Performing Metro Economies at Risk From New Ozone Standards (Mar. 2, 2015), http://www.brac.org/brac/news_detail.asp?article=1947.

37. See *Sierra Club v. Environmental Prot. Agency*, 762 F.3d 971 (9th Cir. 2014).

38. In some cases, EPA has adopted a grandfathering provision that applies to permit applications that EPA or the state permitting authority found to be

application has been pending for months or years and the permit applicant has shown that the new facility will not cause or contribute to the violation of any NAAQS, EPA has often required the permit applicant to redo its modeling analysis using the new standard.

In some cases, this has proven difficult, costly, and rife with delays because EPA's practice has been to adopt a revised, more stringent NAAQS and begin work on implementation and modeling guidance only after adopting the newly revised NAAQS. Although EPA staff have claimed that state environmental agencies know how to proceed when a NAAQS is changed, the state agencies have disagreed in comments to the Agency, and have sometimes delayed action on permit applications until EPA issues the necessary guidance.³⁹

In the case of EPA's 2010 revision of the NO₂ NAAQS, for example, EPA adopted stringent one-hour primary standards—the 98th percentile one-hour daily maximum averaged over three years—to supplement the existing annual standard. Shortly after the one-hour NO₂ NAAQS was issued, EPA put out a memorandum stating that anyone with a pending permit application—even with applications that had been pending for several years—would need to redo a modeling analysis to demonstrate that projected plant emissions would not cause or contribute to a violation of the new one-hour NO₂ NAAQS.⁴⁰

However, the adoption of the short-term NO₂ standard greatly complicated the air quality modeling that new sources were required to provide in obtaining an NSR permit. The standard air quality models in place incorporate overly conservative assumptions for modeling single source effects on ambient NO₂ levels. This over-conservatism was not a problem with the annual NO₂ NAAQS but, with the new, stringent one-hour NO₂ NAAQS, it effectively prevented showing that these new plants would not cause or contribute to NA.⁴¹

³⁹ "complete" before the new standard was established. U.S. EPA, National Ambient Air Quality Standards for Ozone, 80 Fed. Reg. 65291, 65431-34 (Oct. 26, 2015). In such cases, permit applicants are not required to redo their modeling under the new standard. Importantly, EPA did adopt this type of grandfathering approach under the new ozone standard—although not for the earlier revisions to the NO₂, SO₂, and PM standards.

³⁹ For example, in the case of the proposed ozone NAAQS, the Association of Air Pollution Control Agencies (AAPCA) reports that 26 state agencies raised background ozone as an achievability or implementation challenge, and 21 of these states reported concerns and limitations with the tools identified by EPA for permitting or regulatory relief. AAPCA, STATE ENVIRONMENTAL AGENCY PERSPECTIVES ON BACKGROUND OZONE REGULATORY RELIEF (2015), available at http://www.csg.org/aapca_site/documents/AAPCASurvey-StateEnvironmentalAgencyPerspectivesonBackgroundOzoneandRegulatoryRelief-June2015.pdf; Dylan Brown et al., *Air Pollution: Strong Opinions, Shaky Data in Arguments Over Permitting*, GREENWIRE, May 14, 2015, <http://www.eenews.net/stories/1060018570>. In the final ozone NAAQS, EPA acknowledges that it received comments from states and organizations requesting that the Agency issue implementation rules and guidance in a timely manner. 80 Fed. Reg. at 65435.

⁴⁰ Memorandum from Stephen D. Page, to Air Division Directors and Deputies Regions I-X (Apr. 1, 2010) (on file with EPA), available at <https://www.epa.gov/sites/production/files/2015-07/documents/psdnAAQS.pdf>.

EPA identifies these de minimis levels as ozone significant impact levels and model emission rates for precursors.

⁴¹ Similar problems also arose with EPA's promulgation of a one-hour SO₂ NAAQS in June 2010. For a case study of one plant's problems with

It appears that EPA did not fully anticipate these issues, but Agency officials have been working through the modeling issues raised by the short-term one-hour NO₂ NAAQS ever since it was adopted. A year after setting the revised NO₂ NAAQS, EPA provided initial guidance on some of the modeling issues (e.g., the treatment of intermittent, auxiliary sources) and additional flexibility in terms of modeling the cumulative effect of other sources within the region. But EPA still has not provided the modeling tools that, according to many state environmental officials, should have been in place before the new standard was adopted. EPA finally issued a notice of proposed rulemaking in July 2015 to address these remaining issues—five years after promulgating the one-hour NO₂ NAAQS—and a final rule is expected in the next few months.⁴²

The Avenal Power Center, one of the combined cycle projects affected by the 2010 NO₂ NAAQS revision, provides a stark lesson in the obstacle course associated with the NSR permitting process. Avenal was a proposed state-of-the-art combined cycle electric generating project to be located in California, and an EPA regional office was the permitting authority. EPA's Region 9 notified Avenal that its NSR permit application was complete on March 19, 2008.

On February 9, 2010, EPA revised the NO₂ NAAQS by adopting a new stringent one-hour NO₂ standard to supplement the existing annual NO₂ NAAQS, and EPA took the position that the Avenal developers were now required to show that it would not cause or contribute to a violation of the one-hour NO₂ NAAQS. The developers submitted a new modeling analysis to demonstrate compliance with the new standard, but EPA said it could not determine whether it was acceptable because the Agency had not yet adopted a new modeling protocol for use with the one-hour standard.

On March 9, 2010, two years after Region 9 found that its NSR application was complete, Avenal filed suit in federal district court charging that EPA had failed to act within one year as required by §165(c) of the CAA.⁴³ The developers took the position that, because EPA had been legally required to take final action on the permit application well before the new one-hour standard was even proposed, it should not be required to redo its permit application to demonstrate compliance with the new standard. In January 2011, after briefing and oral argument on these issues but before the court reached a decision, EPA informed the court that it had decided to grandfather certain PSD applications, including the Avenal application, from the NSR requirement that projects meet the one-hour

the SO₂ NAAQS, see Ashley Jones, Presentation at the 10th Modeling Conference, Challenges With Modeling for the 1-hr SO₂ NAAQS Standard: An Aluminum Plant Case Study (Mar. 15, 2012), available at https://www3.epa.gov/ttn/scram/10thmodconf/presentations/3-24-Challenges_with_Modeling_1hr_SO2_NAAQS-An_Aluminum_Plant_Case_Study_03-15-12.pdf.

⁴² EPA proposed its revisions to the guideline on July 29, 2015 (80 Fed. Reg. 45339, 45346-49). The existing guideline is published as 40 C.F.R. §51 app. W (2005).

⁴³ Jeff Holmstead, one of the authors of this Article, represented the plaintiff in this case.

NO₂ NAAQS, and explained that it would request comments on its grandfathering proposal.

On May 26, 2011, the court issued an order requiring EPA to take final action on the NSR permit within 60 days (i.e., by August 27, 2011). The EPA regional office issued the NSR permit to Avenal one day later, on May 27, but this did not constitute final action because of the possibility for opponents of the project to appeal the permit to EPA's Environmental Appeals Board (EAB). Project opponents did appeal to the EAB in early June, submitting four petitions seeking a review of the permit.

On August 18, 2011, the EAB issued its decision, declining to review the permit given the time constraints imposed by the district court order requiring the Agency to make a final permit decision by August 27. The environmental opponents of Avenal also filed suit with the U.S. Court of Appeals for the Ninth Circuit. The Ninth Circuit agreed with the environmental groups that Avenal must show that it would not cause or contribute to a violation of the one-hour NO₂ NAAQS.⁴⁴ It appears that, after the Ninth Circuit decision, Avenal decided not to go forward with the project.

IV. Heightened NSR Concerns Under the New Ozone Standard

The new ozone standard illustrates some of the difficulties that arise when EPA adopts a new standard before deciding how it should be implemented. There are several areas of concern with siting new sources under NSR given the interaction with the revised ozone NAAQS, including the effect of modeling requirements, the difficulty of securing needed emissions offsets, and the issues associated with the adoption of a standard at or near background levels of ozone.

A. Modeling Requirements

In the past, EPA's approach has been to "assess the ozone impacts of an individual source . . . on a case-by-case basis in consultation with the appropriate EPA Regional Office and/or permit reviewing authority."⁴⁵ There has not been a "preferred or recommended analytical technique or modeling system," and analyses of single-source effects for NSR have usually involved only a qualitative assessment (although in a few cases, applicants have been required to use sophisticated chemical transport modeling).

In its July 2015 proposal to revise its Guideline on Air Quality Modeling, EPA asserts that advances in photochemical modeling have reached the point where it is reasonable to identify specific air quality models appropriate for use in assessing the ozone effects of individual

sources seeking an NSR permit. As a result, EPA states that it plans to require more rigorous single-source modeling for ozone under the PSD permitting program.⁴⁶ Thus, a qualitative evaluation will no longer be sufficient, and new sources must provide air quality modeling to show that the plant will not cause or contribute to a violation of the new ozone NAAQS.

If the final air quality modeling rule—expected in the next few months—retains a requirement for single-source modeling for the ozone NAAQS, nothing will be in place in terms of clear direction on the specific modeling required. New sources and the permitting authorities will face continuing uncertainty about the modeling required to demonstrate that plant emissions will not cause or contribute to a violation of the ozone NAAQS. Coupled with the more stringent ozone standard, the new modeling requirements for ozone will likely create a significant new challenge for many companies seeking to build new manufacturing plants or industrial facilities in the United States. The bottom line is that new sources will be in a kind of limbo.

EPA has suggested that it will address this concern in part by creating a new de minimis exemption for proposed sources whose emissions are too low to have a meaningful impact on ozone formation. However, EPA does not yet have anything in place to help identify de minimis sources that would be exempt from modeling requirements. Instead, in its recent air quality modeling proposal, EPA explains that it will undertake a new rulemaking that will provide a technical basis to identify emissions levels and ambient impacts that would not be expected to contribute significantly to ambient ozone levels.⁴⁷ EPA has set a schedule for this rulemaking that will take at least another two years—substantially lagging behind last October's change to the ozone NAAQS.

B. Finding Emissions Offsets in PSD Areas

As noted above, EPA policy allows new sources in PSD areas to use emissions offsets to address cases where the plant emissions would cause or contribute to a violation of NAAQS. In theory, this would provide an option for sources located in areas that meet the prior ozone standard of 75 ppb but have monitored levels that exceed the new 70 ppb standard. Until these areas are designated as NA (a process that takes several years), sources located in these areas will be subject to the PSD provisions for NSR, including the requirement that sources show that they will not cause or contribute to a violation of the new ozone NAAQS. Since monitored levels in these areas exceed the new standard, the only recourse these sources may have is to obtain emissions offsets.

44. *Sierra Club v. Environmental Prot. Agency*, 762 F.3d 971 (9th Cir. 2014).

45. Memorandum from Tyler J. Fox, to the Proposed Regulatory Docket No. EPA-HQ-OAR-2015-0310 (June 30, 2015) (on file with EPA), available at https://www3.epa.gov/ttn/scram/111thmodconf/20150630-Ozone_Docket_Memo.pdf.

46. 80 Fed. Reg. at 45346. In 2012, EPA granted a Sierra Club petition and committed to undertake a rulemaking to evaluate whether updates to the guideline are warranted and, if so, to incorporate new analytical techniques in the guideline for ozone and fine PM.

47. Memorandum from Tyler J. Fox, *supra* note 45.

The problem, however, is that these areas will not have the arrangements in place to generate offsets for several years. History has shown that it takes several years for an area to develop the institutional arrangements necessary for the generation of acceptable offsets. EPA does, at least in theory, allow offsets from other areas under certain circumstances, but the opportunity to use these “trades” across areas has historically been constrained by EPA. In particular, the applicant must demonstrate a “net air quality benefit” across the region—a showing that must be made through detailed computer modeling to EPA’s satisfaction. Some commenters on the ozone NAAQS proposal highlighted the difficulty of obtaining EPA approval of such trades.⁴⁸ Finally, it should be noted that rural areas with ozone levels exceeding 70 ppb that do not have any other controllable sources may never be able to generate the needed emissions offsets. As a result, the recent ozone NAAQS may effectively ban the construction of new sources in these rural areas.

C. Dealing With Background Ozone

In the case of the recent ozone NAAQS, the new 70 ppb standard likely approaches background levels in some areas of the United States, leaving little “headroom” for new manufacturing facilities in terms of showing that their residual emissions, even after installing the best available pollution control technology, will not violate the ozone NAAQS. Recent research has found that stratospheric intrusions and long-range transport—particularly in western states—have resulted in daily maximum eight-hour ozone levels of 70 ppb or more.⁴⁹ With the ozone NAAQS at or below background, sources will find it impossible to show that they will not “contribute to” a violation of the standard.

EPA has argued that stratospheric intrusions can be dealt with through its exceptional events policy, which allows EPA to disregard exceedances of a NAAQS caused by certain types of exceptional events. However, states that

have tried to use the policy in the past claim that it has been extremely difficult, costly, and time-consuming to get EPA recognition of any exceptional events—perhaps in part because EPA has established a high hurdle for accepting state claims of exceptional events. In any event, the existing rule sets restrictive requirements for such claims, in part by requiring the affected states to show a “clear causal relationship” between the measured level and the event that has affected air quality in the area.

This requirement necessitates extensive monitoring and modeling to establish a clear causal relationship in a context where there continue to be significant questions about the accuracy of ozone air quality modeling. Further, the state must show that the exceedance is in excess of normal historical fluctuations. It is not clear that states will be able to meet these restrictive conditions because little historical data exist on such intrusions. In the final ozone rule, EPA signaled that it intended to complete revisions to the Exceptional Events Rule and guidance document before October 2016.⁵⁰

In October 2016, EPA issued revisions to its existing Exceptional Events Rule as promised. The rule addresses some of the issues raised by stakeholders since promulgation of the current rule in 2007, with the objective of providing clarity on the criteria needed to prove an exceptional event and increasing the administrative efficiency of the process. Unlike existing EPA policy, however, the rule restricts the scope of the Exceptional Events Rule to specific regulatory actions, such as the designation of areas subject to a NAAQS as attainment or NA and determinations of attainment of a NAAQS by NA areas. EPA explains in the preamble that it is preparing a guidance document to address the exclusion of data for other applications, such as NSR.⁵¹ EPA has not announced a schedule for issuing such a guidance document and, if history is a guide, there may be uncertainty for many years about ways in which exceptional events will affect the NSR program.

V. Potential Administrative Reforms

Past efforts to reform the NSR program have largely focused on changes that would ease the burden on existing sources by reducing the number of projects and activities that would be treated as major modifications of an existing source that require an NSR permit. For example, the most recent changes—issued in 2002—allow the use of projected future actual emissions, rather than potential emissions, in measuring emissions increases; a longer look-back period in selecting the baseline against which future projected actual emissions are compared; and a new program referred to as the plantwide applicability limitations (PAL) program, which creates an incentive for sources to

48. For example, the South Carolina agency in charge of implementing the CAA commented:

One result of recent emission control measures is that there are minimal potential offsets available for any potential major new source review projects in future nonattainment areas. Unless the EPA broadens its acceptance of offset opportunities, most, if not all future offsets may only be obtained from closed facilities. In practical terms, the opening of a new business means the closure of another business.

See Letter from South Carolina Department of Health and Environmental Control to U.S. Environmental Protection Agency (Mar. 17, 2015), http://www.scdhec.gov/HomeAndEnvironment/Docs/NAAQS/15_Ozone_Comment_20150317a_hp.pdf; BROOME & MOREHOUSE, *supra* note 23.

49. Meiyun Lin et al., *Springtime High Surface Ozone Events Over the Western United States: Quantifying the Role of Stratospheric Intrusions*, 117 J. GEOPHYSICAL RES.: ATMOSPHERES (2012), available at <http://onlinelibrary.wiley.com/doi/10.1029/2012JD018151/abstract>; Allen S. Lefohn et al., *Quantifying the Importance of Stratospheric-Tropospheric Transport on Surface Ozone Concentrations at High- and Low-Elevation Monitoring Sites in the United States*, 62 ATMOSPHERIC ENV'T 646, 646-56 (2012); ALLEN S. LEFJOHN ET AL., BACKGROUND OZONE AND ITS IMPORTANCE IN RELATION TO THE HEALTH RISK AND EXPOSURE ASSESSMENT FOR OZONE ASSESSMENT DOCUMENT 7 (2014).

50. U.S. EPA, *supra* note 38, at 80 Fed. Reg. 65437.

51. 81 Fed. Reg. 68229-30 (Oct. 3, 2016).

reduce their emissions as a strategy for avoiding NSR in the future.⁵²

There certainly is merit in exploring additional NSR reforms for existing sources, but this Article is primarily focused on the ways in which the current NSR program may impede construction of new facilities, even with state-of-the-art emission controls. Below, we discuss a set of reforms designed to address these issues and to make the NSR program more sensible when it comes to new sources.

A. A More Realistic Approach for Air Quality Modeling

EPA's current modeling guidance requires deterministic air quality models using the maximum allowable emissions rate and the maximum allowable operating conditions for each averaging time.⁵³ It also requires the use of modeling assumptions that yield the maximum impact on air quality in calculating background, including the effect of other sources in the area. However, sources typically operate well below their maximum allowable emission rates, and it would be highly unusual for all the sources in an area to be emitting at their highest allowable rates at the same time—and during a period when weather conditions would maximize the ambient impacts of their emissions. As a result, EPA's current modeling guidance substantially overstates the ambient air quality effects of a potential new source.

One solution to the over-conservatism of the current approach would be to adopt a probabilistic modeling approach. Adoption of probabilistic methods would allow the use of distributions to reflect the variability in actual emissions, meteorology, and background. One common approach is to use Monte Carlo analysis to combine the information from the various probability distributions to provide an estimate (in the form of a distribution) of the effect on air quality. Thus, probabilistic analysis provides information on the variability and uncertainty in the estimated air quality effects and on the extent to which current deterministic modeling requirements overestimate the actual air quality impacts of a new source.

Adoption of probabilistic air quality modeling approaches would be particularly appropriate with the statistical form adopted for the short-term NAAQS.⁵⁴ Where

a short-term NAAQS has been established to protect a sensitive subpopulation, it might also be possible to use probabilistic modeling to predict the likelihood that a member of such a subpopulation might be present and potentially exposed to peak concentrations caused by unusual circumstances related to weather or emission events.

Obviously, in order for probabilistic modeling to be helpful, EPA must indicate a receptivity to such modeling. But the Agency should also provide guidance on what probabilistic cutpoint must be met when making a determination that a new source will not contribute to adverse air quality impacts. EPA is already using probabilistic modeling to various degrees in other programs, so it should be feasible to develop guidance for appropriate use of such modeling in the NSR program.

B. Reforms to the Offset Program

The statutory offset requirements for the NSR program were established in 1977 and were based on the assumption that, if an area was in NA, the problem was largely caused by local industrial sources that needed to install pollution controls. Therefore, if a company wanted to locate a new facility in that area, it could pay for pollution controls at another facility and thus obtain the emissions reduction credits it would need to offset emissions from the new facility.

Although this may be the case in some areas of the country, it is not the case in many others—especially when it comes to ozone. With the lowering of the ozone standard to 70 ppb, it appears that a number of rural areas will become NA areas, including areas that currently have no industrial facilities at all. In such areas, violations of the ozone standard are typically caused by a combination of natural background, motor vehicles that travel through the area, and pollution transported from long distances. Here, no offsets are available and, depending on how the offset program is implemented, the offset requirement may well serve as an effective prohibition on the construction of any industrial facilities.

The other scenario in which the offset requirement may effectively ban new industrial facilities arises from the fact that some areas of the country have been very aggressive over many years in their regulatory efforts to reduce ozone levels. It may be true, as some critics suggest, that some of these areas did not take aggressive regulatory action until passage of the 1990 CAA Amendments, but states with persistent ozone problems have spent the past 25 years looking for every conceivable way to reduce emissions related to ozone. In these areas, all the cost-effective emissions reductions (and some very costly ones as well) have already been mandated by regulation, and EPA does not allow such emissions reductions to be used as offsets. Where there are any offsets to be had in these areas, they are very expensive and often make it economically infeasible to locate any

52. 67 Fed. Reg. 80189 (Dec. 31, 2002). In 2005, the D.C. Circuit upheld these provisions—but rejected two other provisions intended to ease the burden of NSR for existing plants. *New York v. Environmental Prot. Agency*, No. 02-1387, 35 ELR 20135 (D.C. Cir. 2005) (*New York I*). The D.C. Circuit also turned down a separate 2003 EPA rule—the “Safe Harbor Rule”—in 2006. *New York v. Environmental Prot. Agency*, 443 F.3d 880, 883, 36 ELR 20056 (D.C. Cir. 2006) (*New York II*).

53. This means the modeling must reflect allowable operating conditions as set out by “federally enforceable emission limits, operating level, and operating factor” for each pollutant and averaging time. U.S. EPA, *NEW SOURCE REVIEW WORKSHOP MANUAL C.44-45* (draft 1990). Similar language in EPA’s rule revising its Guideline on Air Quality Models requires the use of the operating conditions causing the “maximum ground-level concentrations.” 70 C.F.R. §51.

54. The one-hour NO₂ and 24-hour fine PM NAAQS require areas to meet the 98th percentile averaged over three years; the one-hour SO₂ NAAQS requires areas to meet the 99th percentile averaged over three years. The

ozone NAAQS requires that areas not exceed 70 ppb for the average fourth high eight-hour ozone level over three years.

new industrial facility in the area, even a relatively small facility with state-of-the-art pollution controls.

Fortunately, potential administrative reforms would help address both concerns—rural areas where no offsets are available and heavily regulated areas where offsets, if they are available at all, are very costly. First, the CAA allows the developer of a proposed new facility to obtain offsets from another area (i.e., an area outside the NA area where the new facility will be located) as long as (1) the other area is also in NA and has “an equal or higher nonattainment classification” and (2) emissions from the other area contribute to NA in the area in which the new source will be located. Historically, it has been very difficult to obtain permission to use out-of-area offsets because EPA and states have required extensive modeling studies to show that emissions from the offset-producing area contribute to pollution levels that exceed NAAQS in the area in which the new facility is to be located. Industry representatives also report that, even where such modeling has been done, EPA has been reluctant to approve it.

However, advances in our understanding of air pollution have shown that ozone and fine PM (often referred to as PM_{2.5}) are more a regional issue than a local issue, and that elevated levels of these pollutants in a particular area are caused in part by emissions from many other areas, including some that are very distant. This finding—based on EPA modeling studies showing that there is long-range transport of emissions that contribute to ozone and fine PM NA—is the basis for EPA’s recent Cross-State Air Pollution Rule. The Rule required substantial emissions reductions from power plants in 28 states because EPA has found that they contribute to ozone and fine PM NA in *other* states.

Thus, instead of requiring case-by-case modeling studies to justify the use of out-of-area offsets, EPA and states could in many cases rely on the long-range transport studies that EPA has already done to show that emissions from 28 states contribute to ozone and fine PM NA in many other states. Even where EPA has not already done such modeling, companies seeking to rely on out-of-area offsets should be able to employ similar studies to justify the use of such offsets. This reform would not address all the concerns about current offset requirements, but it would significantly expand the pool of potential offsets in many parts of the country (especially in rural areas) while still achieving the program’s environmental goals.

Unfortunately, the use of out-of-area offsets may not be an option for some heavily regulated areas such as the South Coast Air Quality Management District (SCAQMD) and the San Joaquin Valley in California because of the requirement that such offsets must come from an area that has “an equal or higher nonattainment classification.” For the purposes of ozone, there are five different NA classifications—marginal, moderate, serious, severe, and extreme—and a developer who might want to build or expand a facility in an extreme area like SCAQMD would be able to use

out-of-area offsets only from another extreme area, where offsets will also be very costly and may not be available.

Even in these areas, however, other reforms to the offset program may expand the pool of offsets and allow the development of some new manufacturing facilities. For example, EPA has historically insisted that emissions reductions required by regulation may not be used as offsets. This may be true when it comes to regulations promulgated by EPA, but states are also required to adopt their own sets of regulations, SIPs, to show how they will come into attainment. If an area wanted to preserve the option of attracting new manufacturing facilities, it could be allowed to set aside some of its SIP emissions reductions to be used as offsets, as long as the SIP shows that other reductions would allow the area to continue making reasonable further progress toward attainment.

As discussed above, a number of studies have shown that NA areas have lower levels of economic growth than attainment areas. This is likely caused, to a large extent, by current offset requirements, which have been developed over many years in a series of restrictive EPA policies and guidance documents. It may be time, especially in light of the new ozone standard, to revisit these requirements to ensure that they strike the right balance between improving air quality and allowing continued economic growth in NA areas.

C. Adoption of a Consistent Treatment for Pending Permit Applications

EPA has been inconsistent in its treatment of NSR permit applications that are pending when a new NAAQS comes into effect. Before 2010, it appears that such decisions were generally made on an ad hoc basis by individual state agencies. Some would require permit applicants to redo their air quality modeling to show compliance with a new standard, but others believed that this approach was not required. In their view, if an applicant had done the necessary modeling to show compliance with the standards in place when the permit application was submitted, no additional air quality modeling was required.

EPA did not address this issue when it adopted its one-hour NO₂ standard in 2010, but it became a point of contention between several permit applicants and environmental groups that were opposing their proposed projects. In response, EPA said that it did have authority to grandfather pending permit applications whenever a new or revised NAAQS was adopted, so applicants would not need to redo their air quality studies based on the standard. However, the Agency said, because it did not explicitly include a grandfathering provision as part of the new NO₂ NAAQS, all applicants with pending permit applications were required to do another air quality study to show that emissions from their proposed projects would not cause or contribute to a violation of the new standard.

Perhaps, because of the problems that this created for many permits that were pending back in 2010, the Agency did include an explicit grandfathering provision as part of the 2015 ozone standard. The Agency could easily adopt this approach in connection with any future NAAQS revisions and grandfather those NSR applications that are reasonably complete before the new NAAQS comes into effect as a part of its final rule. In its ozone NAAQS proposal, EPA is already moving in this direction. It could also extend this approach to protect applicants for projects that are proposed for attainment areas, as long as their applications are complete before the area is designated NA.

Without this type of protection, project opponents will have an incentive to delay the permitting process as long as possible in the hope that the area will be designated NA before a final permit can be issued. A more consistent grandfathering approach would ensure that companies do not spend years trying to obtain a PSD permit, only to reach the end of the process and find they now need to get an NA NSR permit (with offsets that may not be available) rather than a PSD permit.

D. Timely Issuance of Implementation Rules and Modeling Guidance

As mentioned earlier, one of the most important reforms EPA could make is simply to make sure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect. This would require a commitment of EPA resources that the Agency has so far not been willing to make, but it certainly could be done.

Part of the problem may be that the nuts and bolts of implementing a new standard are not terribly “sexy.” The most senior EPA officials, those who are politically appointed, understand that they will be in place for only a few years, and they generally want to spend their time and attention on higher-profile issues. When it comes to NAAQS, they receive praise from the environmental community for lowering the standards, but not for the difficult task of actually figuring out how a lower standard can be implemented. It is rare to have political leaders at EPA, either Republican or Democratic, who want to make their mark on the world by dealing with air quality modeling and the arcane world of offsets.

On the other hand, it would be relatively simple to address this issue with a basic structural reform at EPA. The Agency already has a well-established process for reviewing NAAQS—a process that normally takes several years. At present, this process does not involve key stakeholders involved in implementing the NSR permitting program. The NAAQS review process should be structured so that by the end of the process, the necessary implementation rules and modeling guidance have also been finalized. This simple step would address many of the concerns that have arisen over the past few years.

VI. Potential Statutory Reforms

A. A Narrow Fix: Emissions Fees in Lieu of Offset Requirements

Current modeling and offset requirements may be the most significant regulatory impediment to the development of new and expanded manufacturing plants in the United States. In attainment areas, more stringent NAAQS coupled with conservative models and modeling assumptions make it difficult (and sometimes impossible) for a permit applicant to show that a new facility will not “cause or contribute to” a violation of any NAAQS. Even where it may be possible to make such a showing, the process is uncertain, lengthy, and burdensome.

When a new or expanded source in an attainment area cannot make such a showing, it must obtain emissions offsets in order to obtain a permit. In this sense, it is treated just like a facility in an NA area. In either case, a new facility may not be built unless the permit applicant can obtain sufficient pollution offsets. However, as outlined above, offsets are not available in many areas, and in areas where they are available, they can be prohibitively costly.

We propose a narrow statutory reform that could address these issues while still obtaining most or perhaps even more of the environmental benefits of the current program: allow permit applicants to pay emissions fees in lieu of meeting the current offset requirements, and require the state or local environmental agency to use these fees to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.⁵⁵

Depending on the size of the fee, states may or may not be able to obtain the emission offsets required by the current NSR program, but they may be able to obtain even more because they could seek emissions reductions from a much broader range of sources than allowed under the current program. Current EPA practice favors offsets that come from other industrial sources—not from “mobile sources” (including cars, trucks, and construction equipment) and not from “area sources” (such as dry cleaners, auto body shops, and other paint and coating operations). Our proposal would have emissions fees paid into a fund that would be under the control of the state or local environmental agency, which could use the proceeds to finance emissions reductions and other air quality programs. In some cases, this might include subsidizing diesel retrofits or other emissions reductions from mobile or area sources

55. Both California and Texas run Clean Air Investment Funds (the Carl Moyer Memorial Air Quality Standards Attainment Program and the Texas Emission Reduction Plan (TERP), respectively) that have proven effective in implementing novel emission reduction approaches. For example, the Carl Moyer Program provides grants to owners of heavy-duty vehicles to replace older heavy-duty engines with new and cleaner engines, and to install electric idling-reduction equipment. The TERP has funded alternative fuel and natural gas fueling stations, among other projects. See <https://www.arb.ca.gov/msprog/moyer/moyer.htm> and <https://www.tceq.texas.gov/airquality/terp>.

that can be more important in terms of improving ambient air quality than traditional offsets.

In some cases, states could use their existing regulatory authority to obtain emissions reductions that could be used as offsets. Under current law, existing sources do not necessarily have an incentive to make even cost-effective emissions reductions because (1) they do not have to pay for their emissions and (2) they may want to “hoard” potential reductions to offset future emission increases.⁵⁶ As a result, existing plants have an incentive to retain any potential reductions to support their own plans for plant expansion, instead of generating emission offsets for a new plant.⁵⁷ States could use their existing regulatory authority to obtain such reductions and create offsets that could be used by anyone seeking to build a new source (or expand an existing one).

Under the approach that we are proposing, a new or expanded facility would still need to obtain a permit to ensure that it will be built with modern pollution control technology—BACT in attainment areas and LAER technology in NA areas—but instead of obtaining offsets, it would make a payment to the state or local environmental agency based on its projected emissions. We anticipate that such per-ton emissions fees would be different for different pollutants based on the “reasonable cost” of a technology-based level of control. Some examples of identifying a “reasonable” control cost include the following:

- Section 185 of the CAA (adopted in 1990), which established an emissions fee of \$5,000 per ton adjusted annually by the Consumer Price Index. In 2013, the fee was \$9,400 per ton for NO_x and VOC emissions for severe and extreme NA areas.
- EPA’s regulatory impact analysis for the recently adopted ozone standard, which used a control cost of \$15,000 per ton as a reasonable estimate of the highest per-ton cost that would be necessary for the cost of “unknown” controls required to meet the current ozone NAAQS.

We anticipate that these numbers (\$9,400–\$15,000 per ton) would be at the upper end of the range of potential emissions fees, since they reflect the projected cost of obtaining emissions reductions in the areas with the most serious air quality problems.

B. Broader Structural Reform: Emissions Fees in Lieu of NSR

A more sweeping statutory reform could replace the entire NSR permitting program with a system of industrial emissions fees. The fees could be based on the projected per-ton cost of controlling different pollutants, or they could

instead be damage-based. Damage-based fees could vary based on geographic location, insofar as reasonable estimates of damages are available. Different fees would be applied to different pollutants, based on the best available knowledge of their relative toxicity to human health and the environment. Emissions near population centers would likely be assessed a higher fee than emissions in rural areas.⁵⁸

A virtue of emissions fees compared with the NSR process is that companies can build the fees into their cost structures, creating a clear economic incentive to control or modify their production processes to reduce emissions. Because the fee is automatic, it circumvents all the costly preparations and delays associated with NSR and reduces the power of EPA and state officials over specific companies involved in new construction or in the upgrade or repair of existing facilities. With emissions fees, the company does not face any uncertainty about how the regulator will react to a facility that is new or undergoing repair and maintenance. With NSR, there is considerable uncertainty as to how state or EPA officials will define the NSR obligation for a specific facility. And it is this regulatory uncertainty that may discourage a company from making investments in new facilities. Note that an emissions fee could also be extended to apply to existing sources, removing new source bias.

However, there are important barriers and hurdles to implementing an emissions fee approach. First, a growing body of scientific evidence calls into question a key assumption of the CAA: that there is a “safe” amount of pollution that can be established by environmental science. While a threshold dose for adverse effects seems likely for each individual, there is a wide range of susceptibility to adverse effects, considering the differences among healthy adults, senior citizens, asthmatics, children, and people with cardiopulmonary problems. If the safe population dose threshold is defined as the safe dose for the most susceptible individual, then the population threshold may be very close to zero or background levels.

As a result, the environmental community may oppose the adoption of an emissions fee approach in place of NSR modeling requirements to ensure protection of air quality, out of their concern for the adequacy of protection of public health. On the other hand, some environmental groups are simply looking for the most effective way to reduce emissions, and they may see emissions fees as more effective than an NSR program that is politicized, fragmented, and under constant litigation.

56. Plants do pay nominal Title V fees based on their emissions.

57. This asymmetry between the grandfathering of emissions for existing plants while new plants must obtain emission offsets serves as an important wedge in terms of cleaner new firms buying out the dirtier existing plants in NA areas.

58. In fact, current estimates suggest a substantial variation in damages from one location to another. Further, the damage estimates even vary significantly across locations within the same urban area, by season, and even by time of day. Neal Fann et al., *The Influence of Location, Source, and Emission Type in Estimates of the Human Health Benefits of Reducing a Ton of Air Pollution*, 2 AIR QUALITY, ATMOSPHERE & HEALTH 169, 169-76 (2009); Nicholas Z. Muller & Robert Mendelsohn, *Efficient Pollution Regulation: Getting the Prices Right*, 99 AM. ECON. REV. 1714, 1714-39 (2009); Arthur Fraas & Randall Lutter, *Efficient Pollution Regulation: Getting the Prices Right: Comment*, 102 AM. ECON. REV. 602, 602-07 (2012).

To the extent that fees would be based on estimated damages, an emissions fee approach would require a rigorous benefit analysis. While EPA has developed benefit estimates for the ozone and fine PM NAAQS pollutants, debate is ongoing (and controversial) over the uncertainty in EPA's estimates of the health effects of ozone and PM exposure.⁵⁹ In particular, considerable uncertainty exists in the estimated health effects associated with exposures at the low ambient levels of ozone and fine PM that characterize U.S. air quality. Even EPA acknowledges significant uncertainty associated with mortality estimates for exposures at the low ambient levels of ozone and fine PM that are present in the United States.⁶⁰ Nonetheless, EPA knows how to use tools of uncertainty analysis and those tools could be applied to help develop appropriate emissions fees.

Second, current NSR requirements are designed to protect against short- and long-term violations of the several NAAQS. However, there is substantial seasonal, day-to-day (and even hourly) variability in the effect of emissions from a major plant on ambient air quality. This variability arises from variations in such factors as background emissions and meteorological conditions. As a result, a fixed emissions fee may approximate the effect of emissions in terms of long-term average ambient air concentrations of pollutants such as ozone and fine PM, but such fees would have to vary substantially on a day-to-day (and even hourly) basis across different locations within an urban area to track the daily effect of plant emissions on air quality and the associated air pollution damages.

Thus, a stable annual emissions fee would only rarely be "right" on a day-to-day (or hourly) basis in protecting against short-term violations of NAAQS and in reflecting the damages of plant emissions. A short-term, variable emissions fee responding to variations in meteorological and atmospheric conditions would more closely approximate (although still imperfectly) the damage effects of emissions from a major facility, but implementation of such a variable fee would be challenging. The variability in the fee would also give up some of the "certainty" advantages that would accompany a stable long-term emissions fee.

Nonetheless, with modern computer technology and "big data" systems, a variable emissions fee may be feasible and could prove to be less administratively onerous for industry and EPA than the current NSR program.

Clearly, however, it would have to be structured in a way that provides certainty and predictability for source owners, perhaps by limiting the range in which the fee can fluctuate and setting the fee far enough in advance that they can plan their operations based on the amount of the fee.

The air chemistry associated with NO_x emissions is particularly complicated. The resulting non-convexity in the relationship between reductions in NO_x emissions and ambient ozone and fine PM levels yields negative benefits in some major metropolitan areas. In other words, reducing NO_x emissions can actually make air quality worse in some areas. As a result, it is not clear how best to implement an emissions fee program for NO_x emissions in these major urban areas.⁶¹ However, such modeling difficulties are also a conundrum in the command-and-control approach to NSR that EPA is now implementing.

Third, an emissions-fee approach will require that covered facilities estimate or monitor their emissions of multiple pollutants on a continuing basis. Much of this information is already reported by companies to state environmental agencies, EPA, or both. Since companies would know that under this new approach, fees would be charged for emissions, they would have an additional incentive to understate their emissions to EPA. A rigorous EPA enforcement system—with substantial penalties for false reporting—will be required to ensure the integrity of reported emissions.

Although intensive monitoring and enforcement programs are feasible for major manufacturing plants (the kinds of sources subject to the NSR program), these intensive programs would not be feasible for the large number of smaller stationary/area sources and the transportation programs required to achieve and maintain air quality that meets NAAQS. Thus, for these smaller sources, something like the current CAA processes to implement NAAQS (e.g., SIPs) will continue to be necessary.

VII. Conclusion

The NSR program has become a significant impediment to the construction and expansion of manufacturing facilities in the United States. With increasingly stringent NAAQS, and especially under the new ozone standard, it may effectively prevent industrial development in some parts of the country. We have identified several administrative actions that EPA could take to address these issues while still maintaining the environmental benefits of the program.

We start with two reforms that would be beneficial even if none of the NAAQS is revised again. First, EPA could adopt a probabilistic approach to air quality modeling to replace its current deterministic, upper-bound modeling requirements. Such an approach would more

59. NATIONAL RESEARCH COUNCIL, ESTIMATING THE PUBLIC HEALTH BENEFITS OF PROPOSED AIR POLLUTION REGULATIONS (National Academies Press 2002); Arthur Fraas, *The Treatment of Uncertainty in EPA's Analysis of Air Pollution Rules: A Status Report*, 2 J. BENEFIT COST ANALYSIS 1, 1-27 (2011); Kerry Krutilla et al., *Uncertainty in the Cost-Effectiveness of Federal Air Quality Regulations*, 6 J. BENEFIT COST ANALYSIS 66, 66-111 (2015); Neal Fann et al., *Letter in Response to Fraas & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 755, 755-56 (2013); Arthur Fraas & Randall Lutter, *Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 434, 434-49 (2013); Arthur Fraas & Randall Lutter, *Reply to Letter by Fann, Lamson, Anenberg, and Hubbell Regarding Fraas & Lutter Article: Uncertain Benefits Estimates for Reductions in Fine Particle Concentrations*, 33 RISK ANALYSIS 757, 757-59 (2013).

60. Krutilla et al., *supra* note 59.

61. Fann et al., *supra* note 58; Muller & Mendelsohn, *supra* note 58; Arthur Fraas & Randall Lutter, *Do Some NO_x Emissions Have Negative Environmental Damages? Evidence and Implications for Policy*, 45 ENVTL. SCI. & TECH. 7613, 7613-14 (2011); Fraas & Lutter, *supra* note 58.

accurately predict the air quality impacts of a new or expanded facility and thus make it easier to obtain permits for new and expanded facilities in attainment areas. Second, EPA could adopt reforms that would expand the pool of offsets and allow more clean development in both attainment and NA areas while preserving the program's environmental benefits.

We also recommend two simple reforms that would explicitly address the NSR issues that arise when a NAAQS is revised. First, EPA should revise its regulation to clarify that permit requirements and standards will be based on the date a complete permit application is submitted (which is within the control of the permit applicant) and not on the date the permit is actually issued (which may be years later and is solely within the control of the permitting authority). Second, the Agency should adopt internal staffing reforms to ensure that the necessary implementation rules, guidance, and air quality models are already in place when a revised NAAQS comes into effect.

Additionally, we offer two potential statutory reforms. The first would be fairly narrow but would significantly improve the NSR program by allowing permit applicants to pay emissions fees in lieu of meeting the current offset requirements. These fees would go into a fund that the state or local environmental agency would use to pay for or subsidize emissions reductions that the agency believes will do the most good in terms of reducing environmental risks.

Finally, we note that a more fundamental reform would be to change the statute and replace the NSR program for major manufacturing facilities with a system of emissions fees for each of the NSR pollutants. By monitoring emissions, each company would know its financial responsibility for pollution and could take steps to reduce or prevent emissions and thereby avoid fees. Such an approach would eliminate the uncertainty and unpredictability of the NSR process and encourage the expansion of existing manufacturing plants and the construction of new ones.

Appendix: Chronology for PSD Application for Footprint Power Salem Harbor Development LP Gas-Fired Combined Cycle EGU (630 MW)

Initial application	Dec. 21, 2012
Additional information submitted	Apr. 12, 2013
	June 10, 2013
	June 18, 2013
	Aug. 6, 2013
	Aug. 20, 2013
	Sept. 4, 2013
	Sept. 9, 2013
Draft PSD permit issued for public comment	Sept. 9, 2013
Public hearing	Oct. 10, 2013
Public comment extended	Nov. 1, 2013
Revised General Electric (GE) guarantee	Nov. 1, 2013
Response to EPA & other comments; emissions update with additional GE guarantee	Dec. 11, 2013
Additional letter on startup/shutdown	Jan. 10, 2014
Additional air quality monitoring for PM, & updated emissions rates for carbon monoxide & sulfuric acid	Jan. 16-21, 2014
Draft final permit issued	Jan. 30, 2014
Petition submitted to EAB	Mar. 3, 2014
Petition denied	Sept. 2, 2014
Final permit issued	Sept. 11, 2014

To: Wood, Anna[Wood.Ann@epa.gov]; Rao, Raj[Rao.Raj@epa.gov]
Cc: Nolan, James[James.Nolan@bp.com]; Comey, Kenneth R[kenneth.comey@bp.com]; Stutz, Rachel[Rachel.Stutz@bp.com]
From: van Hoogstraten, David Jan
Sent: Fri 6/30/2017 6:49:19 PM
Subject: FW: Presentation slides/ PSD Permit for cokers at Cherry Point issued by State of Washington
Department of Ecology
RTP slides June 27 2017.ppt

Dear Anna and Raj:

Attached, please find a copy of the slides we projected when we were at RTP last Tuesday. As you suggested, we will also be depositing a copy of these in the EPA docket on the input requested by the Agency in response to the "Energy Independence" EO of March 28.

I also would like to follow-up with you on the PSD permit issue involving cokers at our Cherry Point, Washington refinery that I mentioned when we met. I don't know whether you have had a chance to connect with the Region, but I have some additional information I would like to share with you. Is there a time on Wednesday, July 5, when I could call you briefly to discuss? Kindly let me know what a good time would be and best wishes for the holiday.

Many thanks and best regards,

David

David J. van Hoogstraten

Senior Director, Regulatory Affairs (Environmental)

BP America Inc.

1101 New York Avenue, NW

Washington, DC 20005

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Mobile: Ex. 6

To: Rao, Raj[Rao.Raj@epa.gov]
Cc: Keller, Peter[keller.peter@epa.gov]; Garwood, Ben[Garwood.Ben@epa.gov]; Baker, Kirk[Baker.Kirk@epa.gov]
From: Karen Mongoven
Sent: Wed 12/14/2016 4:21:12 PM
Subject: RE: Heads up re the ozone implementation agenda item for today's NACAA permitting call
[AgendaPermitting-December2016-EPA.pdf](#)

Okay, Raj – thanks for letting me know. Sorry you can't make the call, but we will talk to you again soon. Enjoy the holiday season and we'll be in touch in 2017!

Ben, Kirk and Peter, please keep in mind that George Bridgers, who is on the agenda after you, needs to leave the call by 1:00, so please do your best to wrap up by 12:45-12:50.

If you don't have it handy, the EPA portion of the agenda is attached. We will start at **12:30 p.m. Eastern**. The dial-in number is:

Ex. 6

, access code

Ex. 6

From: Rao, Raj [mailto:Rao.Raj@epa.gov]
Sent: Wednesday, December 14, 2016 10:45 AM
To: Karen Mongoven
Cc: Keller, Peter; Garwood, Ben; Baker, Kirk
Subject: Heads up re the ozone implementation agenda item for today's NACAA permitting call

Hi Karen,

Unfortunately Dan or I cannot make the call today. However, Ben and Peter will cover the policy side and Kirk will cover the Technical basis for the IPT ratios. FYI

Raj

Raj Rao, P.E.
Group Leader, New Source Review Group,
Air Quality Policy Division,
Office of Air Quality Planning and Standards (MD-C504-03)
US Environmental Protection Agency
109 TW Alexander Drive
Research Triangle Park, NC 27709

Ex. 6

919-541-5509 - Fax

Note: Positions or views expressed here do not represent official EPA policy.
Interagency Deliberative and Confidential

To: Rao, Raj[Rao.Raj@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Wood, Anna[Wood.Anna@epa.gov]; Johnson, Yvonne W[Johnson.Yvonnew@epa.gov]; Wayland, Richard[Wayland.Richard@epa.gov]
Cc: Stout, Robert[Robert.Stout@bp.com]; Jonathan Gledhill[jgledhill@policynavigation.com][jgledhill@policynavigation.com]; nathan.frey@rssgroupplc.com[nathan.frey@rssgroupplc.com]; Comey, Kenneth R[kenneth.comey@bp.com]; Wood, Dana A.[Dana.Wood@bp.com]; Nolan, James[James.Nolan@bp.com]
From: van Hoogstraten, David Jan
Sent: Fri 6/23/2017 3:11:32 PM
Subject: RE: Proposed Outline for Meetings Between EPA and BP on Tuesday, June 27 at Research Triangle Park, NC

Yvonne and all: We are looking forward to our meetings at RTP on Tuesday, June 27 and again want to thank you and each of the participants for scheduling everything so quickly and so well. We see this as a good opportunity to reconnect with some of you and to maintain the relationship we have had with some of our key air regulators. Our productive work in the past and the prospect of strong future collaboration are important to us. Below, attached for your consideration, is a high-level outline of what we hope to discuss when we see you.

David J. van Hoogstraten

Senior Director, Regulatory Affairs (Environmental)

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Proposed High-level Outline for Discussion:

REGULATORY REFORM

We want to engage constructively with the objective of benefiting our Company and the Agency, on regulatory reform activities being undertaken at EPA to comply with the Executive Order entitled “Promoting Energy Independence and Economic Growth” (“E.O”) signed by the President on March 28, 2017. This EO relates in important ways to the President's regulatory reform Executive Orders establishing regulatory budgets for Federal Agencies. Once we have discussed our thoughts with you and developed them more fully, we intend, after further consultation with EPA, to make proposals formally to the Agency with the hope that it would pass them on to OMB/OIRA. As you know, under the E.O., Agencies have until July 26 to submit draft reform plans to OMB and the Vice President.

10:00-11:30 am/ NSR/PSD Permitting

While there are a lot of ideas about broad reforms, we would like to discuss a couple of more modest reforms:

Aggregation Policy

-

- We would like to discuss the merits off a bright line test that includes the following:

- o A non-rebuttable presumption that projects permitted or constructed more than three years apart would not be aggregated.

- o Projects less than three years apart would be assessed under a “substantially related” test in which only projects that are technically or economically related are aggregated.

- o For projects less than three years apart, the “substantially related” test would be applied by the permitting authority only (not in subsequent enforcement proceedings) as long as both projects underwent some sort of permitting (even if minor source).

- In addition to discussing the merits, we would like EPA’s thoughts as to how these reforms could be accomplished – through a policy statement, a formal guidance document or rulemaking.

“Begin Actual Construction”

- We also would like to discuss allowing installing tie-ins on existing units and pouring of foundations on planned units prior to receiving a construction permit. These preparatory activities would allow a source to promptly “begin actual construction” of an emissions unit following receipt of a permit and to promptly start up the unit after construction is completed.

- An applicant who chooses to undertake these preparatory activities would be on notice that they are assuming the risk that they will spend money on preparatory activities for a project that may not be permitted.

- We want to test with EPA our thinking that these limited preparatory activities will not dictate the emissions profile of the proposed unit, change the permit review process requirements, or impact the emission reduction goals of the new source permitting programs.

- As with the Aggregation issue, in addition to discussing the merits, we would like to understand EPA’s view about how these reforms could be accomplished.

1:00 - 2:30 pm/ Methane – New and Modified Sources (OOOOa) and existing sources

With respect to methane emissions from oil and gas facilities, the industry is generally in favor of a VOC-only replacement rule that would, as a co-benefit, address all of the same methane emissions as the current OOOOa rule. There are other paths forward that some are also considering. We have not yet seen from EPA a proposed revision to/replacement for the OOOOa rule that governs all new and modified emission sources. We would like to discuss possible paths forward including some of the alternatives for engaging in leak detection and repair given recent technical advances. We are also interested in your views on voluntary measures that could be taken by industry under EPA or industry sponsorship to address methane emissions from existing sources.

2:30 - 4:00 pm/ Ozone NAAQS

Currently, the American Petroleum Institute and its members are considering a number of options concerning how relief may best be obtained from the existing dual ozone standards (2008 and 2015). EPA has not yet settled upon a proposed regulatory

approach. We would like to explore what we see as the options with you, the likely timelines involved in carrying them out and obtain the benefit of your thinking on the possible paths forward.

Also, for many businesses in our sector, including BP's on-land oil and gas business, whatever the final ozone NAAQS determination, there is the overriding concern that many sites will be located in areas that are at or near non-attainment due to high levels of background ozone that cannot be avoided (long range transport especially from Asia, lightening, atmospheric inversion, natural causes, etc.). Therefore, our principal interest is in settling upon an implementation mechanism (amendments to Appendix U to the standard or re-proposal of the Exceptional Events Rule or the Ozone Implementation Rule) that effectively allows for aggregation of these unavoidable causes and their exclusion from non-attainment determinations. We would be interested in discussing those and possibly other mechanisms that could help bring this about.

To: Johnson, Yvonne W[Johnson.Yvonnew@epa.gov]; Jonathan Gledhill (jgledhill@policynavigation.com)[jgledhill@policynavigation.com]; nathan.frey@rssgroupplc.com[nathan.frey@rssgroupplc.com]; Comey, Kenneth R[kenneth.comey@bp.com]; Wood, Dana A.[Dana.Wood@bp.com]; Nolan, James[James.Nolan@bp.com]
Cc: Rao, Raj[Rao.Raj@epa.gov]; Tsirigotis, Peter[Tsirigotis.Peter@epa.gov]; Stout, Robert[Robert.Stout@bp.com]; Wood, Anna[Wood.Anna@epa.gov]; Wayland, Richard[Wayland.Richard@epa.gov]
From: van Hoogstraten, David Jan
Sent: Wed 6/21/2017 6:38:44 PM
Subject: FW: Meetings between EPA and BP on Tuesday, June 27 at Research Triangle Park, NC
BP America Visit to EPA June 27.docx

Yvonne:

Many thanks for your work in setting this up for us, and for making the visit an easy and, hopefully, productive one. We greatly appreciate your efforts. The agenda you have prepared for us is particularly helpful. If you would kindly provide us with information on how best to get from the airport to RTP and back, that might be helpful to some of us.

Our team will be at RTP by 10:00 am on Tuesday, June 27 and all of us will be there throughout the day. Our plan is to return home to our respective cities that evening. There will be six of us in attendance – 3 from BP in addition to myself and two outside consultants with whom we have been working primarily on the regulatory reform agenda. These individuals are:

- [REDACTED] James Nolan, Senior Director, Regulatory Affairs, BP America (based in Chicago)
- [REDACTED] Kenneth Comey, Director Regulatory Affairs and Compliance, BP Products North America Inc. (based in Chicago)
- [REDACTED] Dana Wood, Senior Air Adviser, HSE, BP Lower 48 (on-land oil and gas business) (based in Houston)
- [REDACTED] Jonathan Gledhill, President, Policy Navigation Group, formerly OMB/OIRA
- [REDACTED] Nathan Frey, Principal, Regulatory Strategies and Solutions Group, formerly OMB/OIRA

We are still considering what additional materials we might send to you in advance of our

meetings next Tuesday but understand that additional background would be helpful. As we have indicated, with respect to regulatory reform in the New Source Permitting area, we are particularly interested in discussing some ideas around “beginning actual construction” before a permit is issued and the “aggregation policy.” Of course we are interested in everyone’s view of how the regulatory reform agenda initiated by the White House Executive Orders is likely to play out between now and the end of the year, and then year-on-year. We also hope to discuss generally, the direction(s) in which methane and ozone NAAQS regulation (and the need to address background ozone) could be headed. We are trying to decide which regulatory approaches make the most sense as the Agency also grapples with these issues.

We look forward to meeting with you. Many thanks and best regards,

David

David J. van Hoogstraten

Senior Director, Regulatory Affairs (Environmental)

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From: Johnson, Yvonne W [mailto:Johnson.Yvonnew@epa.gov]

Sent: Wednesday, June 21, 2017 1:46 PM

To: van Hoogstraten, David Jan

Subject: RE: Meetings between EPA and BP on Tuesday, June 27 at Research Triangle Park, NC

Sorry for the delay. I had to wait for a couple of confirmations. Attached is a draft agenda and list of invitees. I was also able to get you a meeting room so you do not have to move around the building that day. Please let me know if this works. As we discussed, the more details you can provide as to what you are wanting to discuss the better. I will also need a list of the people who

are coming. If it is a group of 8 or more I will need to enter them into our Visitor Management System so I will need that information no later than COB Friday. Please be sure and include name, affiliation, and state from which they will have identification (ie, drivers license).

Thank you,

Yvonne W. Johnson

Special Assistant to the Director

Air Quality Policy Division

Office of Air Quality Planning & Standards

U.S. Environmental Protection Agency

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johnson.yvonnew@epa.gov

**BP America Visit to EPA/RTP
June 27, C-300A**

10:00 – 11:30 NSR Permitting

**AQPD invitees: Anna Wood, Juan Santiago, Raj Rao, Jessica Montanez,
Dave Svendsgaard, Peter Keller**

AQAD invitees: Chet Wayland, Tyler Fox, George Bridgers

11:30 – 1:00 Lunch in Lakeside Café

1:00 – 2:30 Peter Tsirigotis, SPPD Topics

2:30 – 4:00 Ozone NAAQS

**AQPD invitees: Anna Wood, Scott Mathias, Rhea Jones, Raj Rao, Ben
Gibson**

AQAD invitees: Chet Wayland, Tyler Fox, Liz Naess, Pat Dolwick

HEID invitees: Erika Sasser, Karen Wesson

To: Gary McCutchen (g.mccutchen@rtpenv-nc.com)[g.mccutchen@rtpenv-nc.com]; Binder, Alan (abinder@pa.gov)[abinder@pa.gov]; Rao, Raj[Rao.Raj@epa.gov]; Eric Hiser (ehiser@jhjlawyers.com)[ehiser@jhjlawyers.com]
Cc: Ken Weiss[Ken.Weiss@erm.com]
From: Ken Weiss
Sent: Thur 6/15/2017 6:25:09 PM
Subject: NSR Update Presentation - AWMA 2017
[1-2017 AWMA RAO NSR Updates 060717.pdf](#)
[2-2017 NSR Legal Update.pdf](#)
[3-AWMA Ozone Interprecursor Trading Slides.pdf](#)
[4-AWMA Reg Reform.pdf](#)

Hello Everybody:

On behalf of the entire panel, thanks so much for attending the New Source Review Issues and Recent Developments Panel at this year's AWMA Annual Conference. As requested, I've attached the four panel presentations. I'm sure that any of the panel members would be glad to respond to questions about the presentations or to expand on some of the issues raised.

Let me know if you have any trouble with the files.

We hope to see you all next year in Hartford.

Ken Weiss, P.E., BCEE

Partner

ERM

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NSR PROGRAM UPDATES

Raj Rao, P.E.

Air Quality Policy Division, New Source Review Group Leader

OAQPS, U.S. EPA

2017 AWMA Conference, Pittsburgh

June 7, 2017



Overview

- NAAQS Implementation Updates (focus on NSR elements)
 - ☐ Fine Particulate Matter (PM_{2.5})
 - ☐ Ozone
- Draft Guidance on Significant Impact Levels (SILs) for Ozone and PM_{2.5}
- Draft Guidance on Modeled Emission Rates for Precursors (MERPs)
- GHG Permitting Regulatory Updates
- Summary of Recent Executive Actions
- Department of Commerce Comment Summary



PM_{2.5} NAAQS SIP Requirements Rule

- **PM_{2.5} NAAQS SIP Requirements Rule** finalized on August 24, 2016 (81 FR 58010) provided framework for planning requirements for 2012 and future PM_{2.5} NAAQS and informs implementation for areas still violating 1997 and/or 2006 PM_{2.5} NAAQS
- Addresses the January 2013 DC Circuit Court remand (*NRDC v. EPA*) of the 2007 PM_{2.5} implementation rule and nonattainment portions of the 2008 NSR rule for PM_{2.5} which held that EPA must implement PM_{2.5} NAAQS under subpart 4 (CAA 188-190) and presumptively required to address all PM_{2.5} precursors (SO₂, NO_x, VOC, ammonia) in SIPs
- Defines “major source” and “major stationary source” for sources of PM_{2.5} and PM_{2.5} precursors for both Moderate and Serious nonattainment areas
 - ☐ Moderate: 100 tons per year (potential to emit)
 - ☐ Serious: 70 tons per year (potential to emit)
- Includes significant emissions rates (SERs) for PM_{2.5} and three PM_{2.5} precursors (SO₂, NO_x, VOC) that would apply for modifications at existing major sources; where there is no EPA-approved NNSR insignificance demonstration for ammonia, state must develop an area-specific SER for ammonia



PM_{2.5} NAAQS SIP Requirements Rule (Cont.)

- Optional PM_{2.5} precursor demonstrations: 3 optional and independent types of “precursor demonstrations” to demonstrate that contribution of a precursor is insignificant; if EPA approves the demonstration, the plan may exclude certain sources from certain requirements for the identified precursor, depending on the specific demonstration submitted
- Rule updates provisions for the Appendix S program for a state that does not yet have an approved NNSR program for PM_{2.5}, including provisions for regulating precursors
- Rule establishes a “phase-in” approach to the regulation of PM_{2.5} precursors in areas relying on Appendix S. For new nonattainment areas, only SO₂ and NO_x are initially regulated. Regulation of VOC and Ammonia is phased in as follows:
 - April 15, 2017 for 2012 (and earlier) PM_{2.5} NAAQS
 - Two years after designation for areas designated nonattainment after April 15, 2016
 - Phase-in does not automatically occur if state submits precursor demonstration; If EPA disapproves NNSR SIP and precursor demonstration, phase-in occurs under Appendix S on April 15, 2017 or date of disapproval, whichever occurs later
- When ammonia is subject to NNSR under Appendix S, state must define SER for each nonattainment area



PM_{2.5} Precursor Demonstration Guidance

- November 2016 EPA issued draft **PM_{2.5} Precursor Demonstration Guidance**
 - Provides recommended technical approaches for demonstrating that a precursor does not “contribute significantly” to PM_{2.5} levels exceeding the standard in the nonattainment area
- NNSR precursor demonstration is a separate, independent demonstration from two other demonstrations applicable to the overall SIP attainment demonstration.
 - ☐ Demonstration based on a sensitivity analysis based on air quality modeling, i.e., projected emissions increase resulting from new and modified major stationary sources
 - ☐ Projected increase based on estimated major source growth specific to individual nonattainment areas
 - ☐ States will need to work closely with their EPA Regional Office to decide on the appropriate parameters for the modeling analysis
- Draft guidance issued on November 17, 2016; public comment period closed on March 31, 2017 (following a 2-month extension). Considering comments; final guidance release date - TBD



2015 Ozone NAAQS SIP Requirements Rule

- **Final National Ambient Air Quality Standards for Ozone Rule** signed October 1, 2015 (40 FR 65292), revising the primary and secondary 8-hour ozone standards to 0.070 ppm
 - ☐ Litigation pending on the level of the standard
 - ☐ Update: On April 11, 2017, the D.C. Circuit granted EPA's request to delay oral arguments pending potential reconsideration; case held in abeyance
- **Proposed Rule: Implementation of the 2015 NAAQS for Ozone: Nonattainment Area Classifications and State Implementation Plan Requirements** published November 17, 2016 (81 FR 81276)
 - ☐ Can be found at <https://www.epa.gov/ozone-pollution/implementation-2015-national-ambient-air-quality-standards-naaqs-ozone-state>
 - ☐ Proposed rule comment period closed February 13, 2017; timing of final rule TBD
- **NNSR:**
- Proposal of Inter-precursor Trading (IPT) provision
 - ☐ Responds to Petition for Reconsideration (2008 Ozone SIP Requirements Rule)
 - ☐ EPA Draft IPT Technical Guidance Document provided in the Docket to Rule
- Anti-backsliding provisions (for proposed revocation of 2008 Ozone NAAQS)



Draft Guidance on Significant Impact Levels (SILs) for Ozone and PM_{2.5} in the PSD Program

- Draft guidance was posted August 1, 2016 and had a 60 day comment period through September 30, 2016
 - ☐ Draft guidance includes a memorandum that identifies recommended SIL values for ozone and PM_{2.5} and describes how these values may be used in a PSD compliance demonstration;
 - ☐ A technical basis document (with supporting appendices) describing how EPA developed the SIL values for PM_{2.5} and ozone; and
 - ☐ A legal support document that discusses a legal basis that permitting authorities may choose to apply if allowing sources to use SILs as part of their compliance demonstrations.
 - ☐ <https://www.epa.gov/nsr/draft-guidance-comment-significant-impact-levels-ozone-and-fine-particle-prevention-significant>



Draft SILs guidance recommended Values for NAAQS

- NAAQS are not class-specific (i.e., Class I, II, III); therefore, ozone and PM_{2.5} NAAQS SILs do not need class-specific values
- For PM_{2.5} :
 - ☐ The analysis resulted in similar NAAQS SIL values for PM_{2.5} as promulgated in the 2010 SILs rule: **1.3 µg/m3 (24-hr)** and **0.2 µg/m3 (annual)**
 - ☐ 51.165(b)(2) values are still in effect and these values constrain the upper limits for PM_{2.5} NAAQS SILs: **1.2 µg/m3 (24-hr)** and **0.3 µg/m3 (annual)**
 - ☐ We recommend the most conservative values that are provided overall from the 2010 rule and the technical analysis
 - ☐ The permitting authority has discretion to interpret an annual impact between 0.2 µg/m3 and 0.3 µg/m3 as significant
- For Ozone: Recommended NAAQS SIL 1.0 ppb



Draft SILs Guidance – Summary of Comments

- Comments:
 - Permitting authorities - generally support the use of SILs.
 - Environmental groups - generally did not support use of SILs (i.e., SILs not allowed by the Act).
 - Industrial groups - generally support the use of SILs; however, some reservations that the draft SILs may be too low to be useful as a compliance demonstration tool.
 - Other stakeholder comments:
 - Requested clarification on the following issues:
 - Discretion for use, absolute constraints on use
 - What is needed in permit records for sources using SILs
 - Would EPA consider alternative SILs and what information would be necessary to justify those
 - Which metric of comparison should be used for SILs
 - Comments being considered; final guidance release date - TBD



Draft Guidance on Modeled Emission Rates for Precursors (MERPs)

- In the recent revision of EPA's *Guideline on Air Quality Models*, (40 CFR 51, Appendix W) EPA finalized a two-tiered demonstration approach for addressing single-source impacts on ozone and secondary PM_{2.5}.
- EPA has provided draft technical guidance that will provide a framework for development of Tier 1 demonstration tools under Appendix W for PSD permitting.
 - *Guidance on the Development of Modeled Emission Rates for Precursors (MERPs) as a Tier 1 Demonstration Tool for Ozone and PM_{2.5} under the PSD Permitting Program* (EPA-454/R-16-006 December 2016)
 - https://www3.epa.gov/ttn/scram/guidance/guide/EPA454_R_16_006.pdf
- MERPs is only one of possible Tier I demonstration tools
- App. W final rule effective as of May 22, 2017



Draft Guidance on MERPs (Cont.)

- For PSD, separate MERPs could be developed to relate:
 - ☐ volatile organic compounds (VOCs) and/or nitrogen oxides (NO_x) to O₃
 - ☐ sulfur dioxide (SO₂) and/or NO_x to secondary PM_{2.5}
- Values will vary across the nation reflecting different sensitivities of an area's air quality level to precursor emissions
- A MERP is expressed as an annual emissions rate in tons per year for direct comparison with the proposed source emission rate and can be calculated as:

$$\text{MERP} = \frac{\text{Annual Emissions Rate (tons per year)}}{\text{Critical Air Quality Threshold (concentration)}} \times \text{Conversion Factor}$$

- The critical air quality threshold, such as a SIL for PSD permitting, is separately defined and expressed as a concentration for PM_{2.5} (in µg/m³) or O₃ (in ppb or ppm)



Draft Guidance on MERPs (Cont.)

- Draft guidance was released on December 2, 2016 for public comment, prior to Appendix W FRN signature; comment period ended March 31, 2017
- Draft guidance provides a framework on how to derive values for MERPs based on relevant existing or new area-specific modeling that sources/states can use in their PSD compliance demonstrations
 - ☐ Guidance includes analyses of and MERPs for several areas but does not endorse a specific MERP value for each precursor
 - ☐ If a permit applicant chooses to use MERP values provided in the guidance, applicant should include a narrative that provides a technical justification that the existing information is relevant for the project.
 - ☐ Guidance provides a framework for users developing their own area-specific MERPs.
- EPA is currently considering comments received and will release a final version of guidance on or shortly after release of the final SILs guidance



GHG Permitting Regulatory Updates

- EPA has taken a series of steps to respond to the June 23, 2014, Supreme Court decision in *UARG v. EPA* and the April 10, 2015, D.C. Circuit *Coalition for Responsible Regulation v. EPA Amended Judgment*
 - April 2015 final rulemaking revising EPA's PSD regulations to enable the EPA to rescind EPA-issued PSD permits for GHG [Direct Final (80 FR 26183); Parallel Proposal (80 FR 26210)]
 - August 2015, final **Prevention of Significant Deterioration and Title V Permitting for Greenhouse Gases: Removal of Certain Vacated Elements Rulemaking** (80 FR 50199)
 - * Rule removed certain provisions from PSD and title V that were vacated as part of the D.C. Circuit Court's April 2015 Amended Judgment
 - On August 26, 2016, EPA proposed the **Revisions to the Prevention of Significant Deterioration (PSD) and Title V Greenhouse Gas (GHG) Permitting Regulations and Establishment of a Significant Emissions Rate (SER) for GHG Emissions Under the PSD Program** (81 FR 68110)
 - * Rule also proposed the remaining changes to PSD and title V that are necessary to fully implement the D.C. Circuit Court's April 2015 amended judgment
 - * Public comment period closed December 16, 2016; EPA is currently reviewing comments.
 - * **Timing: TBD**



PSD Permit Rescission Rule

- In November 2016, the EPA issued a final rulemaking amending the **permit rescission provision** at 40 CFR 52.21(w), which applies to EPA issued permits and permits issued by delegated states.
 - ☐ Final Rule – 81 FR 78043.
 - ☐ Amended the permit rescission provision to remove the July 30, 1987 date restriction.
 - ☐ Added this permit rescission provision to the major Nonattainment NSR Rules in Indian country to provide permit rescission authority for all federal major source permitting programs.
 - ☐ Clarified that permit rescissions continue to be case-by-case determinations
 - * No permit rescission criteria was finalized.
 - * Review of a rescission request requires an in depth evaluation of the source, the rules in place at the time, and the court decisions or other events affecting the source.



Summary of Recent Executive Actions

- (Jan. 24, 2017) Presidential Memorandum Streamlining Permitting and Reducing Regulatory Burdens for Domestic Manufacturing (Department of Commerce Study)
- (Jan. 24, 2017) Executive Order 13766 - Expediting Environmental Reviews and Approvals for High Priority Infrastructure Projects
- (Jan. 30, 2017) Executive Order 13771 - Reducing Regulation and Controlling Regulatory Costs
- (Feb. 24, 2017) Executive Order 13777 - Enforcing the Regulatory Reform Agenda
- (March 31, 2017) Executive Order 13783 – Promoting Energy Independence and Economic Growth

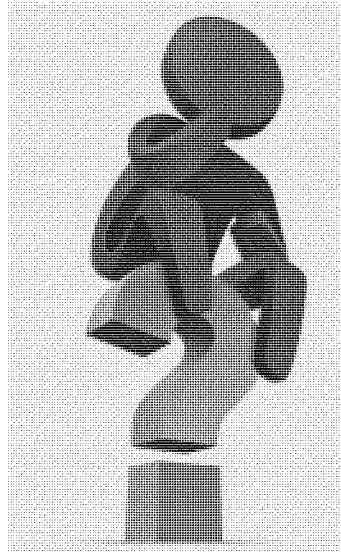


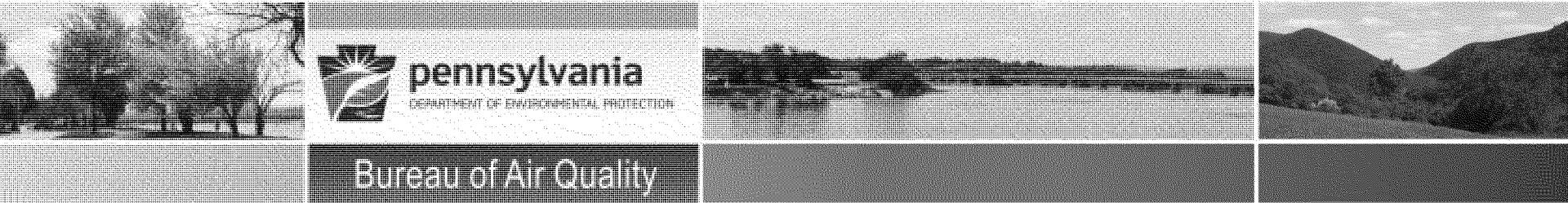
Department of Commerce Study Comments

- Most of the comments that relate to the CAA focused on the NSR and title V programs. Commenters also provided comments on other CAA programs such as NAAQS, NSPS, and NESHAP.
- Identified 192 unique air permitting comments, most of which fell in the following categories:
 - NSR Permit Processing
 - NSR Applicability
 - Control Technology
 - Air Quality Impacts
 - Emissions Offsets
 - Collaborative Federalism
 - Title V Permit Processing



Questions and Comments





Nonattainment New Source Review Ozone Interprecursor Offset Trade

A&WMA, ACE 2017

NSR: Issues and Recent Developments

June 7, 2017

Ozone Interprecursor Trade

Background (1)

- PA-04-00740A issued to Shell Chemical Appalachia LLC (“Shell”) authorizes construction of a petrochemicals complex in an area classified as nonattainment for the 8-hour ozone NAAQS, and also in the OTR, in Beaver County, PA.
- NNSR requirements including LAER and offsets are triggered for both NO_x and VOC as precursors to ozone formation. 400 tons of NO_x and 620 tons of VOC ERCs are required as offsets.



Ozone Interprecursor Trade

Background (2)

Table 1: ERCs Secured by Shell

Generating Source	Expiration Date ^a	PM _{2.5} (tons)	VOC ^b (tons)	NO _x ^b (tons)
Horsehead Corporation, G.F. Weaton Power Plant	9-11-21	24.05	9	899.6
Horsehead Corporation, Monaca Zinc Smelter	4-26-24	34.10	64	211
FirstEnergy Solutions Corp., Armstrong Power Plant Unit 1	8-31-22	49 ^c	10.18	-
FirstEnergy Solutions Corp., Mitchell Power Plant Unit 3	10-4-23	91	13	-
FirstEnergy Solutions Corp., Armstrong Power Plant Unit 2	7-21-22	-	10.82	-
Total ERCs Secured	-	198.15 ^c	107.00	1,110.6

^a Applicable expiration dates if not used in a plan approval or operating permit.

^b Shell requested approval for interprecursor trading to substitute NO_x ERCs in place of VOC ERCs as ozone precursors to satisfy the remainder of required VOC offsets.

^c As-submitted. This value is later proportionally reduced for compliance with 40 CFR Part 63 Subpart UUUUU.



Ozone Interprecursor Trade

Background (3)

- Shell is unable to secure sufficient VOC ERCs located within the same ozone nonattainment area, but has secured an excess of NO_x ERCs from Horsehead Corporation's former G.F. Weaton Power Plant and Monaca Zinc Smelter.
- Pennsylvania NSR regulations under 25 Pa. Code Chapter 127 Subchapter E provide a pathway for ERC trading between different pollutants for offsetting or netting purposes.



Ozone Interprecursor Trade

Regulatory Authority

25 Pa. Code §127.206(o): “Except as provided under §127.210 (relating to offset ratios), an ERC created for a regulated criteria pollutant shall only be used for offsetting or netting an emissions increase involving the same criteria pollutant unless approved in writing by the Department and EPA.”

Ozone Interprecursor Trade

Process (1)

- Shell submitted a Plan Approval modification application to incorporate secured ERCs, followed by a supplemental request for approval to substitute NO_x ERCs in place of VOC ERCs at a 1:1 ratio.
- The Department performed an evaluation of the supplemental request including verification of secured ERCs and supporting modeling references, and final determination of approval.

Ozone Interprecursor Trade

Process (2)

- The Department submitted a letter to U.S. EPA Region 3, requesting evaluation of and response to Shell's interprecursor trade request. A complete copy of Shell's supplemental request and a summary of the Department's determination were provided.
- U.S. EPA Region 3 responded with a letter of approval including a summarized analysis of the request and applicable requirements.

Ozone Interprecursor Trade

Process (3)

- Notice of intent to modify PA-04-00740A, along with approval of the interprecursor trade, was provided to U.S. EPA and nearby states, and published for public comment. The Department also elected to hold a public hearing due to substantial public interest.
- All public comments, including hearing testimonials are evaluated and responded to prior to final modification of PA-04-00740A to incorporate secured ERCs and approve the interprecursor trade.

Ozone Interprecursor Trade

Supporting Data and References

- OTC Modeling Committee, “OTC Modeling Related to the Effectiveness of VOC and NO_x Controls,” 2012.
- Tim Vinciguerra, Emily Bull, Timothy Canty, Hao He, Eric Zalewsky, Michael Woodman, Sheryl Ehrman, Russell Dickerson, “Expected Ozone Benefits from EGU NO_x Reductions,” 2015.
- Underhill, Jeffrey, Jeffrey.Underhill@des.nh.gov, May 3, 2016, message to Phillip May (may@rtpenv.com), Sent 10:10AM, NOTR Airshed Modeling Results.

Ozone Interprecursor Trade

Interesting Points (1)

- Approval of a 1:1 ratio is the most straightforward as it allows for an examination of relative impact only and is otherwise unconcerned with magnitude. Approval of a lesser ratio would require more in-depth quantitative analysis of ozone impacts.
- All secured VOC ERCs were incorporated prior to applying the substitution of NO_x. However, it could be seen as more beneficial to completely substitute VOC with NO_x.

Ozone Interprecursor Trade

Interesting Points (2)

- Photochemical modeling data and results including this ozone nonattainment area were recent, available, and useful towards supporting this approval.
- Secured NO_x ERCs were entirely generated at the same site as Shell's proposed petrochemicals complex.
- This is a specific case-by-case evaluation for this interprecursor trade.



Ozone Interprecursor Trade

Final Determination

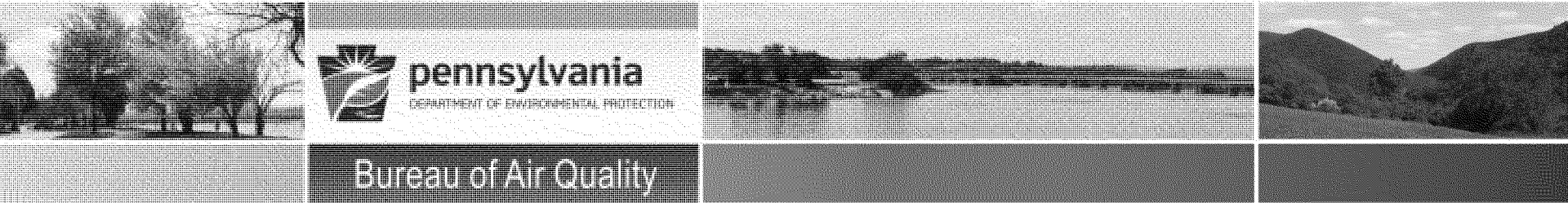
- This ozone nonattainment area is NO_x-limited and will have a greater ozone reduction benefit from reductions of NO_x than VOC.
- The Department and U.S. EPA approved the interprecursor trade between NO_x ERCs and VOC ERCs at a 1:1 ratio.
- Shell may use 107 tons of VOC and 913 tons of NO_x ERCs to offset 620 tons of VOC and 400 tons of NO_x potential emissions.



Ozone Interprecursor Trade

Useful References:

- Pennsylvania NSR regulations
 - <http://www.pacode.com/secure/data/025/chapter127/subchapEtoc.html>
- Application and plan approval documentation
 - <http://www.dep.pa.gov/About/Regional/SouthwestRegion/Community%20Information/Pages/Shell.aspx>



Bureau of Air Quality

Alan Binder, P.E.
New Source Review Section Chief
PA Department of Environmental Protection
SWRO Air Quality Program
abinder@pa.gov

To: 'wood.annamarie@epa.gov'[wood.annamarie@epa.gov]; Rao, Raj[Rao.Raj@epa.gov]
Cc: 'Isritts@epa.gov'[Isritts@epa.gov] **Ex. 6**
From: Ram Singhal
Sent: Mon 7/31/2017 7:39:12 PM
Subject: FPA's NSR Reform Priorities
[Flexible Packaging Association's Recommendations on NSR Priorities.pdf](#)
[FPA FINAL Submission Recommendations on Repealing Replacing and Modifying EPA Regulations..pdf](#)
[FPA FINAL Comments on Simplifying Permitting for U.S. Manufacturers Permit and other Environmental Burdens on Manufacturers.pdf](#)

Sorry, forgot to attach FPA comments on streamlining permitting for US Manufacturers and other environmental burdens on manufacturers. Please use this email with attachments when considering FPA's NSR priorities.

Thanks.

Ram

Ram K. Singhal
Vice President

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[View the Sustainability Advantages of Flexible Packaging](#)

From: Ram Singhal
Sent: Monday, July 31, 2017 2:01 PM

To: 'wood.annamarie@epa.gov' <wood.annamarie@epa.gov>; 'rao.raj@epa.gov' <rao.raj@epa.gov>

Cc: 'lsritts@' **Ex. 6**

Subject: FPA's NSR Reform Priorities

Good afternoon to you both,

Attached are FPA's NSR Priorities that we would like EPA to consider under EO 13777.

Please call/email if you have any questions or need additional information.

Thanks.

Ram

Ram K. Singhal

Vice President

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[View the Sustainability Advantages of Flexible Packaging](#)



Docket # 170302221-7221-01
Mr. Carter Halfman
U.S. Department of Commerce
Office of Strategic Management and Finance
1401 Constitution Ave., NW
Washington, D.C. 20230

**RE: Impact of Federal Regulations on Domestic Manufacturing: Streamlining
Federal Permits for Manufacturers 82 Fed. Reg. 12786 Mar. 7, 2017).**

Dear Mr. Halfman:

The Flexible Packaging Association is responding to the Department of Commerce's Request for Information (RFI) regarding the impact of federal permitting requirements on the construction and expansion of domestic manufacturing. 82 Fed. Reg. 12786 Mar. 7, 2017). The RFI was issued pursuant to the White House Memorandum of January 24, 2017 to the Department of Commerce directing it to consult with stakeholders and in coordination with EPA and other federal agencies to make recommendations to the President within sixty days of that consultation to submit a report to the President setting forth a plan to streamline Federal permitting processes for domestic manufacturing and to reduce regulatory burdens affecting domestic manufacturers. 82 Fed. Reg. 8667 (Jan. 30, 2017).

I. BACKGROUND

The Flexible Packaging Association (FPA) was established in 1950 and is a national trade association comprised of manufacturers and suppliers of flexible packaging. The industry produces packaging for food, healthcare, and industrial products using paper, film, foil, or any combination of these materials. Examples of flexible packaging include tamper-evident packaging for food and medicine, rollstock, bags, pouches, labels, liners, wraps, and other packaging for a variety of commodities. Flexible packaging, a \$31.9 billion industry, employs approximately 80,000 people in the United States and is now the second largest segment of the



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U.S. packaging market estimated at \$162 billion.

NAICS Codes- These manufacturers are principally classified under NAICS 323111 (Commercial Printing (except Screen and Books), 326112 (flexible packaging, plastics film, manufacturing), and 322220 (Paper Bag and Coated and Treated Paper Manufacturing).

Federal Permits Required to Build, Expand or Operate Flexible Packaging Plants

Five types of federal environmental permits are required to build and/or operate a flexible packaging plant.

1. Federal Clean Air Preconstruction Permits, called New Source Review (NSR) permits. In areas that attain the National Ambient Air Quality Standards (NAAQS) NSR permits are referred to as Prevention of Significant Deterioration or PSD permits. In NAAQS nonattainment areas they are referred to as Nonattainment NSR or NNSR permits.
2. Clean Air Act Operating permits, also referred to as (also referred to as Title V permits or Part 70 Permits for the respective CAA Title or the part of Chapter 40 of the Federal Code of Regulations that authorize them).
3. Solid Waste and Hazardous Waste permits under the 1976 Resource Conservation and Recovery Act, as amended by the Solid Waste Act of 1986, are required to dispose of and recycle materials, including scrap plastics, laminates, and cleaning materials used to make flexible packaging and to maintain their presses and facilities.
4. FPA members also must hold Clean Water Act permits to dispose of waste waters (mostly sanitary wastewater and collected stormwater) into Publicly Owned Treatment Works. Several of FPA's larger members have their own wastewater treatment plants and thus in limited instances also may be required to have National effluent discharge permits ("NPDES permits").
5. In certain instances, flexible packaging companies may also be required to have preconstruction Federal Clean Water Act wetlands permits for dredging or filling, but in most instances the National General Wetlands Permits cover specific types of activities associated with construction or drainage.

II. DISCUSSION OF PERMIT BURDENS ON FLEXIBLE PACKAGING MANUFACTURERS

A. FPA Views Two Types of Clean Air Act Permits and the RCRA Permitting Program as Major Burdens to Manufacturers, Expansion of the Industry, and Compliance with Environmental Law.

Of the federal permits listed above, Clean Air Act preconstruction permit requirements impose the most burdens on FPA's members because of the time needed to obtain the permit before the manufacturer is allowed to "begin actual construction" on expanding a plant by adding a printing line or changing its method of operation. Moreover, the beginning of actual

construction is defined differently by virtually every State and frequently by the respective EPA Regional Office overseeing State permitting, despite the Clean Air Act's requirement for permitting consistency in Section 301(a)(2) of the Act. Delays in receiving a permit put a company at a competitive disadvantage. And delays in being allowed to "begin actual construction" on parts of a project that are unrelated to emissions units create even more delays, particularly in parts of the country where winter constraints on construction exist. Finally EPA's and the States' different views and interpretations of what "begin actual construction" means create risks for manufacturers from EPA enforcement and citizen suits.

The second most burdensome federal permitting requirement is the requirement for CAA "operating permits." The third most burdensome federal operating permit for this industry are authorized by RCRA, since many flexible packaging industry qualify as "large quantity generators" but are not required to actually obtain a permit so long as they register their plants, and do not accumulate hazardous waste onsite for longer than 90 days. However, it needs to be underscored that failure to meet any of the RCRA requirements for generators, including recordkeeping and reporting requirements, subjects a manufacturer to substantial civil penalties for failure to have a permit that accumulate per day per violation. States, however, which administer all but four of the RCRA programs, have a poor understanding of 40 CFR Part 261-267 RCRA requirements applicable to generators-- a problem not resolved by EPA's 2016 generator improvement rule.¹ The burden comes from EPA's enforcement of the program in the 44 remaining States.

B. The Burden Created by the Overlap of Federal and State Permit Programs is Most Serious under the Clean Air Act.

Federal and State Clean Air Act permits and permit requirements overlap, but in most States, the federal preconstruction and the Title V operating permits are administered by the States, with federal oversight and overreach. State-construction permit *program* requirements must be submitted to and approved by EPA under Clean Air Act Section 110(b). This overlap is frequently burdensome and confusing because EPA generally does not approve federal SIP regulatory changes for nearly two years or longer after States revise their local Clean Air Act regulations. Consequently, it is not unusual for State and federal permit conditions affecting pollution controls or emissions monitoring requirements to be different although in most instances the agencies agree to enforce the most stringent requirement under CAA Section 116. In addition, and perhaps more importantly, while States by in large issue preconstruction permits (called New Source Review or NSR) permits as well as Title V operating permits, EPA oversees individual permits when they are issued and enforces alleged violations of the federal CAA for permit violations. This overlap between state and federal CAA permit authority creates overarching confusion, risk, delay, and uncertainty.

In contrast to other environmental permit programs, EPA is far more involved in the oversight and decisionmaking involved with the issuance of Clean Air Act permits than RCRA or

¹ 81 Fed Reg. 85,732 (Nov. 28, 2016).

CWA permits. Thus it is most typical for the State to issue a draft CAA preconstruction and/or operating permit for public comment and for the respective Regional EPA office to review and comment on the final draft permit, sometimes necessitating re-publication of the draft permit for additional public review. It is not atypical for there to be disagreements on three principal issues: (1) the stringency of pollution controls/allowable emission rates;² (2) protocols and assumptions for modeling (i.e., forecasting) emissions from proposed new major sources or major modifications;³ and (3) how compliance with permit terms will be enforced.

Also because citizens can object to issuance of a Title V permit if their comments are rejected by the State (or EPA if the State lacks a federally approved Title V operating program), EPA's role is more important in day-to-day operations of the CAA operating permit program. Operating permits are updated and re-issued every five (5) years, providing periodic opportunities for citizens to object to historical pollution control and emissions compliance monitoring permit conditions (including, but not limited to whether or not a plant was built or modified without a PSD or NSR permit 15-20 years before the permit is renewed. Because EPA's policies have changed over the years, particularly with respect to preconstruction PSD/NSR permit applicability and enhanced emissions monitoring, citizen and/or EPA permit objections recur putting operations in jeopardy since it is illegal to operate without a valid Title V permit.

FPA Recommendation 1- *FPA recommends that the Department of Commerce evaluate if the roles of the federal and state governments can be better refined to avoid these overlapping burdens and risks to manufacturers. It appears to us to be fundamental that federal and state regulators should be able to agree on basic issues about how CAA permits are issued, monitored and enforced.*

C. FPA Recommendations on Specific PSD/NSR Permit Issues-

The Request for Information urged manufacturers to identify some of the most "burdensome" permit requirements on U.S. manufacturing and recommendations to fix them. FPA has identified three issues below, which our members share concerns about and believe are amenable to fairly simple "fixes."

1. FPA urges the Department to Discuss Reforms to Hold Permit Authorities to Shorter Timelines for NSR Preconstruction Permit Issuance.

² The Clean Air Act technology review requirements must assure that Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) is selected for a new plant or plant expansion project and permitting. Until recently flexible packaging plants have not been subject to modelling ambient air quality impact air dispersion modeling because they principally emit volatile organic compounds (i.e., ozone precursors), modeling is a great concern but we lack experience to comment on the burdensomeness of this new requirement.

³ CAA Section 165 requires modeling of emissions from proposed projects to demonstrate that they will neither violate nor interfere with a National Ambient Air Quality Standard (NAAQS) or a NAAQS Increment.

The Clean Air Act's Preconstruction Permits in PSD areas and Nonattainment areas (called PSD and NNSR permits respectively or "New Source Review" permits collectively)⁴ are the most onerous permitting requirements that this industry confronts for several reasons. *First* although the Act provides that a permit must be issued within one year of receipt of a preconstruction permit application,⁵ it is not unusual for eight (8)-to- fourteen (14) months to elapse between the permit authority's receipt of a "complete" PSD or NSR permit application and the State's or EPA's issuance of a permit. *Second*, compounding this delay, States and EPA generally do not deem PSD or NSR applications to be "complete" when they are first submitted, and sometimes it takes several supplemental submissions for a completeness determination to be rendered before the application is deemed "complete" and processed. That can easily add another four (4)-six (6) months delay in receiving a permit to construct. *Third*, States and EPA Regions can "game" completeness determinations because of the lack of the availability of permit reviewers, EPA's failure to communicate with a State on integral permit decisions and policy affecting BACT and LAER pollution control technology reviews and air dispersion modeling protocols and assumptions. Frequently news of these "failures in communication" does not percolate back to the permit applicant for many months so that they can be worked out. *Fourth* State/EPA disagreement about the stringency of pollution control and "continuous emissions monitoring" permit conditions, in combination with the length of permit review time discussed above, force manufacturers to capitulate to unreasonable permit conditions and pollution controls or monitoring requirements in order to "begin actual construction" of long-delayed projects.

FPA Recommendation 2 - *FPA recommends that the Department discuss using checklists and incentives with permit authorities and EPA to shorten the time for permit review and issuance. Neither States nor EPA should be able to delay permit review by using "completeness determinations for applications" to evade CAA Section 165's requirement for permit issuance within one year of receipt of a PSD application.*

2. FPA Urges the Department to Discuss Revisions of EPA's Policies Interpretation the Regulatory Phrase "Begin Actual Construction."

Regulatory Background - CAA Section 165 states that a "no major emitting facility . . . may be constructed in any area to which this part applies unless--a permit has been issued for such proposed facility" 40 U.S.C. § 7475(a)(a). EPA regulations interpret this prohibition to mean that a PSD/NNSR permit applicant may not "begin actual construction," until the CAA preconstruction permit is received. EPA defines "begin actual construction" to mean--

"(i)nitiation of physical on-site construction activities on an emissions unit which are of a permanent nature. Such activities include, but are not limited to, installation of building supports and foundations, laying underground

⁴ See 40 CFR §§ 51.166, 52.21 and 52.22.

⁵ Clean Air Act Section 165(c); see also *Avenal Power Center LLC v. EPA*, Civ. Acton #10cv383 (Memo Opin. May 26, 2010)

pipework and construction of permanent storage structures. With respect to a change in method of operations, this term refers to those on-site activities other than preparatory activities which mark the initiation of the change.”

See 40 CFR 51.166(b)(11) and 40 CFR Part 52.21(b)(11), 52.22(b)(11).

The burden that manufacturers must deal with is that there are multiple EPA interpretations of the term “begin actual construction.” These interpretations (not the actual regulation) lengthen the time it takes for manufacturers to construct and/or install manufacturing equipment and increase enforcement risk to manufacturers owing to the inconsistency of EPA and State approaches. Perhaps the most lenient interpretation of the EPA regulation is to ban the installation of the actual piece of emitting equipment (e.g., a printing line with multiple rollers and drying ovens, an extruder, or laminating machine). The most conservative interpretation, on the other hand, is a ban on any construction or installation of anything necessary for building and/or installing anything related to the emitting equipment such as laying a building foundation, excavating building footings, installing electrical or plumbing, digging drainage for a building or on the property and any land preparation except for tree removal and levelling. Companies have received CAA Notice of Violations for demolishing old equipment which will be replaced. One company was fined for installation of outdoor lighting on the property which they opted to install because winter was approaching and they wanted to install it before spring when they anticipated receiving the PSD permit because it would expedite construction of the building even though the lighting on the grounds did not involve electrical for manufacturing.

Interpretations of this key definition “begin actual construction” also illustrates how the issuance of Clean Air Act preconstruction permits is interpreted differently by the States and the Federal government. For instance, some States will allow a plant to move dirt and begin construction of the building, as long as the emitting source is not installed, while others do not allow anything to be done to prepare the site. In some States once the permit is declared complete, construction of certain types of sources can begin and demolition of old equipment may commence. But every State is different and sometimes varies by industry. Most States allow some accommodation for projects that will be delayed by the onset of winter, but it is risky to undertake some activities.

Although not regulated by the federal Clean Air Act per se, individual State minor permit programs also are disrupted by EPA’s interference in state preconstruction permit regulatory requirements. In the context of the definition of “begin actual construction” which only is a federal regulatory requirement, States like Wisconsin has been trying to implement some of the very exclusions from Start of Construction that this letter advocates in their Minor Permit Program. However, EPA Region 5 has stated they will not approve portions of the proposed revisions because they do not match up with its own interpretation of the phrase “begin actual construction.” Not only is EPA’s position an unnecessary and unauthorized intrusion on a

State's sovereign authority, but the burden of these competing interpretations is real. If the project is minor to start with, it is safe to conclude that it may not need to be held to the same federal standard as a "major source" or "major modification." Even though any work would clearly be at the applicant's risk they are completely unwilling to accept this approach. Effectively this EPA interference drives the Major Source preconstruction permitting structure down into the State's program (where Congress never intended it to be.)

FPA Recommendation 3 - *FPA submits that a company should be able to begin any construction prior to permit approval as long as the sources are not operated if this is done at the company's risk. Our members acknowledge that the facility eventually could need to make modifications to meet permit conditions eventually issued, but we also point out if there was more consistency in critical State and Federal interpretations of the Clean Air Act permit programs, this would rarely be an issue. In making this recommendation, FPA also concedes that Congress was concerned that once substantial expense was incurred by a permit applicant before a permit was granted for actual construction, the proverbial "White Elephant" argument strengthened an applicant's political position to obtain a Clean Air Act permit. First, FPA submits that the absence of a consistent interpretation of the term "begin actual construction" creates unnecessary burden and confusion on manufacturers. Second, and more importantly, FPA submits that allowing manufacturers to take the risk that a PSD or NNSR permit will not be ultimately granted by EPA or a State with reasonable terms and conditions is a business risk. At the least, companies should at least be able to construct and/or install whatever is needed to prepare a building site, erect a building and everything else necessary for installing the actual emitting equipment before a CAA PSD, NNSR, or Title V permit is granted. Optimally, manufacturers should be allowed at their own risk to install emissions equipment but not allowed to operate it before a PSD/NNSR permit is obtained.*

FPA Recommendation 4 – *FPA urges DOC also to consider integrating the concept of "Design-Build Projects" into the Clean Air Act permit discussion. This is an approach that streamlines the time it takes a business to implement desired changes. Many companies are heading toward some version of this approach abroad because the window for business opportunities is so narrow. However, the current Federal/State environmental permitting approaches assume that the entire project has been planned out in great detail before the application has been submitted. In fact, phasing a project is illegal and clear evidence of Clean Air Act permitting (NSR) circumvention according to EPA guidance. Violators of the CAA's prohibition against circumvention are subject to civil and criminal penalties if they do not wait for the approval to start any phase of a development project.*

3. Regulatory Burdens Inherent in Clean Air Act "Title V Operating Permits"

Clean Air Act Title V Operating Permits also are burdensome for manufacturers to maintain and update. The CAA requires a "major source" or a "minor source subject to an applicable federal CAA requirement" to have an operating permit that summarizes all CAA requirements it is subject to in order to operate. A manufacturer also must revise its Title V permit when it make any change at its plant that changes a permit term and also to renew it

Title V operating permit every five years in a public review process. These requirements create several significant overarching burdens for manufacturers. First, serious manufacturing delays and process changes result from permitting delays occasioned by the overlap of State and Federal NSR preconstruction and Title V permitting procedures. If these two sets of permits (with admittedly different conditions and requirements) are not processed at the same time, there are significant delays. Second, because a State or EPA Title V operating permit or permit revision is subject to the risk of a “Petition to EPA’s Administrator to Object to the Permit” *after* the preconstruction permit is obtained there is additional regulatory risk and confusion if the NSR and operating permits are not issued as drafts for public review and comment at the same time. Third, States and EPA continue to allow retroactive attacks on Title V permit terms whenever a permit is issued, revised, or renewed, even if the permit is only re-opened for a specific change to add a new emissions source or new NSR applicable terms. Examples of issues that are raised abound but here are two from the flexible packaging industry:

- A VOC source in the printing industry is required to perform opacity monitoring of plant emission stacks, which do not generate any opacity. EPA’s Technical Support Document for the Printing Industry⁶ indicates that monitoring for these types of VOC sources is not required. States say EPA requires that their permit regulations require “enhanced monitoring” and so they must demand opacity monitors. Citizens also assert that even though monitoring may not technically be warranted, every source must be monitored for compliance. To avoid this debate if they are desperate, manufacturers perform the visual inspections, which require the employee from the company to become trained as a certified smoke reader to use EPA Reference Method 9 (costing the company roughly \$4000-\$5000 annually).
- Flexible packaging plants directly generate pure ozone from the treatment of films, paper and foil substrates. This ozone is not the smog that is regulated under the National Ambient Air Quality Standard for Ozone, which is a secondary emission formed from the reaction of NOx and VOCs in the troposphere.⁷ This very simple technical issue over which there should be no disagreement holds up Title V permits, with some States understanding it and others placing burdensome monitoring, modeling and abatement requirements in Title V permits. The abatement requirements can roughly cost in excess of \$10,000 annually and \$10,000 capital per stack (a typical plant may have 10 of these stacks).

The Title V permit objection process also can snare a manufacturer, particularly if separate public notice and comment is provided sequentially on a preconstruction permit and the Title V operating permit. Most often this happens with respect to historical monitoring and even preconstruction permitting issues for equipment built or installed decades ago. If the State or EPA fails to deny a permit because of a public comment, the citizen can petition the

⁶ TECHNICAL SUPPORT DOCUMENT (TSD) FOR TITLE V PERMITTING OF PRINTING FACILITIES (revised June 2007).

⁷ Ozone is reported by the industry in Toxic Release Inventory (TRI) reporting under the Emergency Planning and Contingency Reporting Act, even though it is not regulated by the Clean Air Act.

EPA Administrator to object to the permit, essentially causing it to be withdrawn for a problem that may have been visited twenty years before. EPA has attempted recently to streamline the permit objection process, even by adding internal deadlines not supplied by Congress for processing objections, but the process still remains murky. Non-governmental environmental and other activists utilize the EPA objection process because no Title V permit can be issued until issues raised in an objection letter can be resolved and the sixty day period for judicial review of the Administrator's denial of the permit objection petition ends.

While the States are implementing a Federal Program there is often significant variance between how the States handle identical situations. This may be truer with the Title V Operating Permits than it is for PSD or NNSR permits, but those variations are real in all instances. This causes any company operating in multiple States to try to play by very different sets of rules.

FPA Recommendation 5 - *We particularly recommend that States and EPA should review permits in parallel, especially for projects that require both NSR Preconstruction Permits and Revisions to Title V Operating Permits.*

FPA Recommendation 6 - *The States minor source preconstruction and operating permits should not be subject to the same requirements as the federal NSR permit programs.*

D. . Other CAA Environmental Burdens on Flexible Packaging Manufacturers.

In addition to streamlining permitting to reduce regulatory burdens for domestic manufacturers, the January 24, 2017 White House Memorandum asks for the Department to solicit information on related regulatory programs, not directly related to receipt of a necessary permit, that create unnecessary burdens. FPA submits that the most significant of such related issues are instances where EPA has used Policy Interpretations in the place of administrative rulemakings under the CAA Section 307(b) to step beyond the framework established by the Clean Air Act and its Amendments. Four specific EPA policies and interpretations are of particular concern to this industry because of the unnecessary burdens they create:

1. EPA's NESHAP "Once-in, Always-in Policy."⁸

- ☐ The "Potential to Emit for MACT Standards – Guidance on Timing Issues" policy, now referred to as the "Once-in, Always-in Policy" was conceived by EPA to prevent manufacturers from partially controlling Hazardous Air Pollutants (HAP) regulated by a National Emissions Standard for Hazardous Air Pollutant (NESHAP), but turning the required pollution control off except as they are required to attain non-major source status (and no longer be subject to the NESHAPs)."

⁸ J. Seitz, Director, EPA Office of Air Quality Planning & Standards, "Potential to Emit for MACT Standards – Guidance on Timing Issues" (May 16, 1995).

- ☐ The Once In/Always In Policy, however, creates a huge disincentive for companies to look for less hazardous or nonhazardous replacement chemicals“ because under the Policy, manufacturers must still operate NESHAPs controls and comply with all applicable recordkeeping and reporting requirements even though in industries like flexible packaging water based coatings and inks are available and required to comply with other state and federal environmental laws to meet the ozone NAAQS. If manufacturers replace HAP-containing chemicals with water based coatings, then recordkeeping and reporting permit requirements remain in their operating permits as federally enforceable and publicly enforceable conditions, and the company must continue to report on operations of its pollution controls – mostly catalytic and thermal oxidizers.

The regulatory burden is a counter-intuitive. Is EPA really saying that companies shouldn't be rewarded by being relieved of regulatory requirements when they can comply using new materials and processes to no longer be “major sources” subject to NESHAPs requirements?

- ☐ As a consequence of the “Once In/Always In Policy,” EPA has even required facilities to comply with the NESHAP requirements after a chemical (i.e. MEK) was delisted by EPA from the list of HAPS, which incidentally was the only reason that a manufacturing plant was subject to the NESHAP requirements.

FPA Recommendation 6 – *The Department should recommend that EPA rescind the “Once In/Always In Policy.”*

2. EPA Reliance on Theoretical Air Dispersion and Other Emissions Models that Overstate Emissions Impacts,

- ☐ EPA uses air models⁹ to predict the effect of not-yet constructed new “major emissions sources (i.e., plants)” or “major modifications” of major emissions sources on ambient air quality. The Computer Models themselves are intentionally set up to generate very conservative results.
- ☐ Then site data is entered based on the maximum amount of pollutant that could be generated from every piece of equipment not only simultaneously but throughout the entire 8,760 hours in a year at the potentially most exposed receptor (even though atmospheric conditions like wind make that impossible).
- ☐ This set of parameters will NEVER happen.
 - ☐ Each machine only operates as needed.
 - ☐ Each machine requires downtime for maintenance and cleaning.
 - ☐ Not every product requires things like dryers to be operated at full load.

⁹ Codified in Appendix W of 40 C.F.R. Part 51:

- The list of conservative assumptions that are input into the model goes on...
- In most cases the ambient air models have never been compared against real-time monitoring data to see how accurate they are.
- When modeled outputs on ambient air quality have been compared against monitored data they virtually always project a higher impact than what is observed.

FPA submits that by the time you take a very conservative estimation tool and throw in an impossible scenario the output is pretty much meaningless. However, companies are held to those results as if they were factual measurements. This can delay or even block projects that are truly beneficial from environmental, energy efficiency and economic development from receiving the required permits.

FPA Recommendation 7 - *Even if backstopping new construction with monitoring is the solution, EPA's models should be based on actual projected operating situations. The Department should recommend that EPA's air models and modeling assumptions collected in 40 C.F.R. Part 51, Appendix be reviewed and revised to replicate actual emissions and potential exposure scenarios.*

3. Clean Air Act Source "Aggregation Policy" to Determine NSR and Title V Permit Applicability

- The PSD regulations treat sites under common ownership and control that are either contiguous or adjacent as one site (with the 2-digit SIC code for purposes of determining PSD/NNSR applicability. This has led to nonsensical results.
- The purpose of EPA's Aggregation Policy is relatively clear – an onsite contractor or two truly related operations that happen to be side-by-side shouldn't be able to game the NSR or Title V permit requirement and avoid more detailed review.
- However, EPA reinterpreted its regulation to broaden the definition of adjacent to mean "functional inter-relatedness"
 - As a result, there are examples in their database of interpretations where sites miles apart have been considered to be a single site subject to Clean Air Act permitting.
 - The single site triggers more stringent permitting, which will delay the process and/or trigger EPA Notices of Violation and civil/criminal liability for failure to obtain a permit...
- Even after losing this argument in court (relating to the oil and gas extraction industry¹⁰), the federal agency continues to try to apply it to other industries (having undertaken a rulemaking to allow States to make decisions regarding "adjacency" for the oil and gas industry."

¹⁰ *Summit Petroleum Corp. v. EPA*, 690 F.3d 733 (6th Cir. 2012).

4. EPA “Project Aggregation” Policy

- The “Project Aggregation Policy” is the opposite of the “Major Source Aggregation Policy” discussed above. This policy interpretation of the regulatory requirement for “major modifications” is designed to prevent companies from splitting a single large project requiring Major PSD or NSR Review into smaller chunks in order to “circumvent permitting and review (including application of Best Available Control Technology and air dispersion modeling of ambient air quality impacts of the “entire project.”)
- However, in practice EPA’s “project aggregation policy” is currently being applied (especially in EPA Region 5) to aggregate multiple “very separate” projects at a single site that happen within a year (or up to 36 months in some other cases). Although these projects are separately funded, have very different purposes, and are economically and physically independent of each other (i.e., they do not depend on each other to operate or for return of investment), the federal government automatically assumes they are a single project for permit review. The result if any of the projects is carried out, or has already been built, is that the manufacturer is barred from constructing the second or third project and would be subject to civil and potentially criminal liability for circumventing the Clean Air Act it is was or is built.
- It is virtually impossible to get such projects separated later, even if there is any connection at all. EPA applies apply a broad standard of “do they help your overall production or overall bottom line of making money.”

FPA’s members have seen firsthand where one project that was intended to increase flexibility and another project to replace a failing piece of support equipment occurred at about the same time. They were grouped together and sent though PSD or major modification even though the support equipment replacement has essentially no emissions. It didn’t matter than they would be paid for out of different funds; that separate portions of the business were driving the projects; that they would both happen independently even if the other was denied; or that it was virtually impossible for them to both affect the manufacture of a single product. EPA ruled that if the projects took place at the same site, within a year, they were “1 (the same) project.”

FPA Recommendation 8- *The Department should recommend that EPA’s “Project Aggregation Policy” be rescinded.*

III. SIMPLIFYING REGULATORY COMPLIANCE

Current Clean Air Act permitting approaches allow little or no flexibility to address the needs of US businesses to meet competitive challenges or opportunities in a worldwide market. FPA urges the Department and the Interagency Task Force to discuss how these manufacturing goals can be met, consistent with the goals of the PSD program Congress outlined in CAA Section 161 to balance the goals of environmental protection with economic development.

FPA has participated in many EPA CAA stakeholder hearings and committees since 1990 on simplifying, streamlining, and reforming the PSD/NSR and Title V permitting. There are many ways to streamline and relieve burdens on manufacturers and state permitting agencies including fixing BACT/LAER decisionmaking and simplifying air dispersion modeling and offset transactions that EPA has rejected over the years. We recommend that one of the simplest things that the Administration can do to help manufacturers is simply let them take on the business risk of preparing a site or facility for new equipment to be installed when a Title V, PSD or NSR permit is received. We also recommend that a number of EPA interpretative policies that limit production by aggregating projects and or emission units and impeding cleaner compliance alternatives through policies like the "Once In/Always In" NESHAPs policy also can be easily rescinded. Harder to resolve are issues discussed involving air quality modeling, but they are of paramount importance because many manufacturing projects are discussed throughout this and other industries that are simply abandoned before any permit application is drafted because they fail EPA's modeling test.

FPA appreciates this opportunity to submit this small but important recommendation. If you have questions or require additional information, please do not hesitate to contact me at 410-694-0823 or by email at rsinghal@flexpack.org.

Sincerely



Ram Singhal
Vice President, Regulatory and Governmental Relations
Flexible Packaging Association

Cc: Ms. Nena Shaw, Acting Office Director
U.S. Environmental Protection Agency
EPA Office of Strategic Environmental Management
1200 Pennsylvania Ave., NW Room 2111C
Washington, DC 20004



May 15, 2017

Docket No. EPA-HQ-OA-2017-0190

Mr. Ryan Jackson, Administrator's
EPA Chief of Staff

Ms. Samantha Dravis, Associate Administrator
EPA Office of Policy

U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

FPA Recommendations to Repeal, Replace or Modify Clean Air Act Regulations in Order to Alleviate Unnecessary Regulatory Burdens; 82 Fed. Reg. 17,793 (Apr. 13, 2017)

Dear Mr Jackson and Ms. Dravis:

The Flexible Packaging Association (FPA) is responding to EPA's Notice requesting the public's input on EPA regulations that should be repealed, replaced, or modified because of their inequitable burdens on domestic manufacturers, pursuant to Presidential Executive Order 13777. FPA was established in 1950 and is a national trade association comprised of manufacturers and suppliers of flexible packaging. The industry produces packaging for food, healthcare, and industrial products using paper, film, foil, or any combination of these materials. Examples of flexible packaging include rollstock, bags, pouches, labels, liners, wraps, and tamper-evident packaging for food and medicine. Flexible packaging, a \$31 billion industry, employs approximately 80,000 people in the United States and is now the second largest segment of the U.S. packaging market estimated at \$162 billion.

The attached Table includes this industry's recommendations for "repeal, replacement, and/or modification of specific rules that cover the Clean Air Act (CAA), the Resource Conservation & Recovery Act, the Clean Water Act, Emergency Planning & Community Right to Know Act (EPCRA), and the Amended Toxic Substances Control Act (TSCA). We urge the agency to prioritize its review of the following ten (10) regulations, which are more fully described in the attached Table:

1. Repeal the 1995 CAA MACT "Once In, Always In" Policy;
2. Modify the EPCRA Toxics Release Inventory (TRI) Reporting List by Removing "Pure" Ozone (i.e., not secondarily -formed smog);
3. Modify the CWA Spill Prevention , Control & Countermeasure (SPCC) rules by eliminating pelletized and solid wax from the definition of "oil" from SPCC plans;



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4. Repeal TSCA SNUR on isocyanate containing polymers that are otherwise regulated by FDA in food packaging;
5. Repeal TSCA Regulation of Nanotechnology under Significant New Use Rules for New Uses of Existing Substances and Modify TSCA Nanomaterial Reporting Rule By Clearly Repealing Requirement For Reporting By Processors/Users.;
6. Repeal applicability of PM2.5 SIP Implementation (including PM2.5 NSR applicability) to VOCs and Ammonia and Reinstitute PM2.5 Surrogacy Policy until Air Dispersion Modeling for Secondary Air Pollutants is Available at a Reasonable Cost.
7. Repeal EPA's CAA FIP Call for State Implementation Plan Provisions for Emissions during Startup, Shutdown and Affirmative Defenses;
8. Replace and/or Modify Applicability of Compliance Testing Method 25A to VOCs and VOHAP (applicable to oxidizers and required for MACT compliance testing under 40 CFR Part 63, Subparts KK (Publishing and Printing) and JJJ(Paper and other Web Coatings);
9. Replace NSR Exemption for "Routine Replacement, Repair And Maintenance" with a Bright Line Test.

10. Repeal and Replace NSR "Major Source" and "Major Modification" Project Aggregation Policy. FPA appreciates this opportunity to provide comments. If you would like additional information regarding our industry or these comments, please contact me at 410.694.0823 or rsinghal@flexpack.org.

With best regards,



Ram Singhal
Vice President, Technology & Environmental Strategy

Attachment – TABLE OF FPA RECOMMENDATIONS IN RESPONSE TO E.O. 13771



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FPA Recommendations to Repeal, Replace or Modify Clean Air Act Regulations to Alleviate Unnecessary Regulatory Burdens on Americans

82 Fed. Reg. 17,793 (Apr. 13, 2017)

Docket No. EPA-HQ-OA-2017-0190

NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
1. Repeal the 1995 MACT “Once In, Always In” Policy (J. Seitz, “Potential to Emit for MACT Standards – Guidance on Timing Issues” (May 16, 1995))	Clean Air Act, 42 U.S.C. § 7412(d) <i>(“NESHAPs Standards for existing major sources of Hazardous Air Pollutants (HAP) called “MACT Standards”).</i> EPA’s The <i>“Once In /Always In Policy”</i> states that after the “compliance date for a MACT rule,” sources that become area (non-major HAP sources”) must continue to comply with MACT standards. EPA commenced rulemaking to withdraw the policy, but did not finalize the proposed action. 72 FR 69 (Jan.3, 2007). Most flexible packaging plants have eliminated Hazardous Air Pollutants (HAP) from their coating and ink formulations. Also, EPA delisted MEK from the 112 HAP list – it is used by the industry in coatings and as a cleaning solvent. Nevertheless, EPA still treats these plants as “major HAP sources” for purposes of NESHAPs compliance and reporting, etc.	(ii) are outdated, unnecessary, or ineffective; (iii) Imposes economic costs that exceed benefits because compliance is achieved with low-HAP containing inks and coatings, rather than oxidizers.	By complying with 40 C.F.R. Subparts KK and JJJJ by eliminating most HAPs from their processes, flexible packaging plants have become minor or “area” HAP sources, <i>but they still must</i> continue to perform periodic stack-testing maintain and calibrate monitoring equipment, & comply with MACT rules even if they are no longer major sources. FPA members estimate an costs of \$35,000 per stack test with up roughly \$75,000 for loss production downtime for testing, maintaining, & calibrating pollution controls no longer needed for MACT compliance. Spread across the industry, the cost is the equivalent of 2 jobs at each plant.



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NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
2. Modify Toxics Release Inventory (TRI) Reporting List by Removing Pure Ozone Emitted in a Process.	EPCRA, 42 U.S.C. §§11021-11023 (<i>Toxic Release Reporting</i>): 40 CFR § 68.130. EPA added ozone to the 313 TRI list in the “Phase I” rulemaking, with over 300 other compounds. 59 FR at 61,432 (Nov. 30, 1994). FPA members were told by EPA that it intended to collect this information for “information purposes.” Corona type treaters on a flexible packaging press emit pure ozone that reacts quickly in the atmosphere when released from building roof vents. It does not contribute to tropospheric ozone formation, or “smog,” regulated as a National Ambient Air Quality Standard, which in contrast to pure ozone, is a secondary pollutant that is produced from the reaction of volatile organic compounds and nitrogen oxides in a complex series of atmospheric reactions in the presence of sunlight.	(ii) are outdated, unnecessary, or ineffective; (iii) Imposes economic costs that exceed benefits There is no public health benefit from TRI reporting for pure ozone from corona treaters or other types of “arcing” equipment because it reacts quickly after release and does not contribute to the formation of smog. Some health spas use pure ozone in health treatments and stores selling ozone makers for facials was a fad in the nineties. Other than EPCRA TRI reporting, ozone from corona-type treaters is not regulated, probably because it dissipates rapidly.	As a result of “ozone” being listed as an EPCRA § 313 pollutant, flexible packaging facilities are prominent in EPA’s annual TRI Facility lists. <u>Few other industries appear to report pure ozone</u> , although it is released by most industrial and utility arcing equipment like electrical substations. State regulators and the public are confused and may erroneously conclude that the industry is a significant polluter. Ozone destruct units can result in expenditures of \$35k a line for treatment (generally a catalyst) and annual O&M costs for catalyst and equipment of \$15-20k per unit. An average of five units per plant costs \$175,000 with annual O&M \$125,000, roughly 2-3 salaries.
3. Modify Spill Prevention Control and Countermeasures (SPCC) Plans to Eliminate Pelletized and Solid Wax from the Definition of “Oil” under the	Clean Water Act, 33 U.S.C. 1321(j)(1)(C) , Spill Prevention Program, 40 C.F.R. § 112.2; 72 Fed. Reg. 58,378 (Oct. 15, 2007). Wax pellets were first included in SPCC planning under a 1978 list of “oil like substances,” but do not flow like oil under ambient conditions and were excluded for dairy	(iii) Imposes economic costs that exceed benefits Solid resins and wax in aboveground silos should not be considered an oil under ambient conditions and pose no danger to navigable waters or the environment unless directly	SPCC planning for solid waxes and resins stored at ambient temperatures is costly and unnecessary.



NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
	manufacturers by EPA in the 2008.	spilled into a waterway.	
4. Repeal and Replace NSR “Major Source” and “Major Modification” Aggregation Policies	Clean Air Act, 42 U.S.C. §§ 7602(z) (definition of stationary source”); 7475 (definition of “major emitting facility” and “major modification” subject to NSR in attainment areas;” 7503 (definition of “major modification” in nonattainment areas”); 7661a (Title V Operating Permits for Major Sources”); 40 CFR Parts 51.165 (b)(1)(i)(a), 51.166(b)(1)(i)(a),, 52.21 (b)(1); 70 and 71; 67 F.R. 80,186 (Dec. 31, 2002), rev’g 45 Fed. Reg. 52,676 (Aug. 7, 1980); 75 Fed. Reg. 27643 (May 18, 2010) (“Delay of Effective Date of Aggregation Rule”); 75 FR 19567 (Apr 15, 2010) (“Proposed Delay of Effective Date of Aggregation Rule”); 74 FR 22,693 (May 14, 2009): “Stay of Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Aggregation” Rule published at 74 FR 2,376 (Jan. 15, 2009): <i>Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NSR): Debottlenecking, Aggregation, and Project Netting</i>”); <u>Applicability of NSR Review Circumvention Guidance to 3M - Maplewood, Minnesota (PDF)</u>.	(i) Eliminates jobs, or inhibits job creation; (iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies by inhibiting and discouraging the introduction of new product lines in the U.S.	The toll on U.S. industry from the uncertainty of key CAA permit applicability requirements cannot be over-estimated. Even for industries that must operate in the U.S. , EPA’s varying policies and interpretations of the scope of the CAA terms “major source” and “major modification” have resulted in billions in fines and injunctive relief meted out by the courts and EPA, caused other large manufacturing segments to build offshore because of the delays and uncertainty in obtaining permits and the lag that creates for expanding product lines in the fiercely competitive global marketplace. These conflicting , often case-by-case” definitions have an equally chilling impact on smaller manufacturing segments like flexible packaging that encompasses both large multinational companies and many small businesses, competing internationally.



NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
5. Replace NSR Exemption for “Routine Replacement, Repair And Maintenance” with a Bright Line Test.	CAA, 42 U.S.C. §§ 7411 (New Source Performance Standards); 7475, 7503; 40 C.F.R. §§ 51.166(b)(11)(d), 51.165(b)(11) 52.21(b)(11)(d). See <i>New York v. E.P.A.</i> , 443 F.3d 880 (D.C. Cir. 2006)(New York II) (<i>holding that a process replacement exclusion from NSR based on a 20% replacement of capital cost violated the definition of “modification”</i>)	(i) Eliminates jobs, or inhibit job creation; (iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies After myriad federal district court decisions holding that EPA’s definition of RMRR in NSR enforcement cases was arbitrary (EPA used criteria such as whether a repair or replacement cost exceeded \$100,000, frequency of the change at the same plant or within that industry and other arbitrary factors to determine routineness), it is time for EPA to issue a definition of RMRR on which most reasonable people would agree and could apply.	Enormous savings to companies who could maintenance equipment without the ambiguity and risk of EPA’s enforcement office and citizen suits. If the rules would also encompass energy efficiency improvements in like-kind replacements using better materials to improve throughputs, additional savings for manufacturing, industry and the environment could be realized.
6. Repeal 2015 Ozone NAAQS and 2015 Ozone Implementation Rules until States Implement Fully the 2008 Ozone NAAQS.	Clean Air Act, 42 U.S.C. §§ 7407 (State NAAQS Designations), 7409 (Standard-setting) 7410 (State Implementation Plans and Revisions). 40 CFR Parts 50, 51. The 2015 ozone implementation rule was proposed on Nov. 17, 2016 at 81 Fed. Reg. 81,276 (“OZONE NAAQS-	(v) relies on scientific information that has not been disclosed to the public (iii) Imposes economic costs that exceed benefits The long delay in implementing the 2008 standard resulted in the 2015 standard being issued	See NAM and Business Roundtable Comments on the cost to the GNP and employment for implementation of the 2008 and 2015 Ozone NAAQS. EPA should allow the 2008 Ozone NAAQS Standard to be fully implemented. The two standards essentially



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	<u>“Proposed Nonattainment Area Classifications and SIP Requirements Rule”</u>	before some of the implementation guidance for 2008 being created.	compete against each other significant Agency and Industry resources to implement .
7. Repeal FIP Call for State Implementation Plan Provisions for Emissions during Startup, Shutdown and Affirmative Defenses.	Clean Air Act, 42 U.S.C. §§ 7410 110(a)(2)(H), (I); “State Implementation Plans: Responses to Petitions for Rulemaking, Restatement and Update of EPA’s SSM Policy Applicable to SIPs; Findings of Substantial Inadequacy; and SIP Calls To Amend Provisions Applying to Excess Emissions During Periods of Startup, Shutdown and Malfunction; Final Rule,” 80 Fed. Reg. 33840 (June 12, 2015). Incidental emissions from purging pollution control technology like oxidizers may not be allowed depending on how state and federal permits and other federally enforceable standards are written. These incidental emissions if not released when equipment is purged and started up can cause pollution controls to explode.	(iv) Creates a serious inconsistency or otherwise interferes with regulatory reform initiatives and policies The 2015 FIP call is inconsistent with States flexibility to plan how each will attain and/or maintain the NAAQS and enforce their own laws. The FIP Call disapproving 36 State and DC SIPs is not based on a finding, required by CAA Section 42 U.S.C. § 7410(I) that these provisions interfere with timely NAAQS attainment.	All permits will require another review and rewritten to address this issue. The time and expense for the Agency and industry to redo permits will cost each plant \$10,000 to \$20,000 in time and re-permitting. There is no environmental benefit since these emissions are already covered in existing permits and rules.
8. Repeal Significant New Use Rule (“SNUR”) on isocyanate-containing polymers that are otherwise regulated by FDA in food packaging	Toxic Substances Control Act (TSCA), 15 U.S.C. § 2605 (a) Significant New Use Rules, 40 C.F.R. § 721; for Existing Substances; <u>EPA TSCA SNUR Dockets:</u> EPA-HQ-OPPT-2014-0760, EPA-HQ-OPPT-2014-0277,	(iii) Imposes economic costs that exceed benefits FDA regulations provide adequate assurances regarding migration in food and device packaging.	Products that are regulated by FDA for food packaging are subjected to SNUR as part of the PMN review. Foreign companies use similar products and make laminates that compete with our customers who are at a disadvantage due to SNUR.



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	EPA-HQ-OPPT-2014-0166		
9. Repeal TSCA Regulation of Nanotechnology under Significant New Use Rules (SNURs) for Existing Substances	TSCA, 15 U.S.C. §2605 (a)(2); 40 .F.R. § 721; https://www.epa.gov/reviewing-new-chemicals-under-toxic-substances-control-act-tsca/regulatory-actions-under-tsca ; See e.g., 79 Fed. Reg. 38,464 (July 8, 2014) (SNUR for 13 chemical substances including two PMN substances, P-10-5 and P-11-339, subject TSCA Section 5(e) consent orders) whose reported chemical names include the term "carbon nanotube" (CNT).	(iii) Imposes economic costs that exceed benefits. i) Eliminates jobs, or inhibits job creation; (iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies Regulatory overlap with FDA for packaging is not necessary.	Note that the European Chemicals Agency appeals board annulled agency decision that requested nanospecific substance identity information from REACH registrants http://bit.ly/2mQ8byy .
10. Modify TSCA Nanomaterial Reporting Rule to Limit Its Application to Manufacturers And Importers), and Repeal Requirement for Reporting By Processors.	TSCA §2608 (a) (TSCA Inventory Rule): 40 C.F.R §§ 704.20 (a)-(b) (persons who must report); see 82 Fed. Reg. 3641 (Jan. 12, 2017). The rule fails to provide guidance on determining whether a “nanoform” of an existing substance possesses a “unique and novel properties” that is critical to determining the obligation to report this information is not included on certified material and/or product data sheets supplied by a manufacturer.	(iii) Imposes economic costs that exceed benefits Nanomaterials provide extended shelf life for foods and other products, durability, obstacles for chemical migration and other product enhancements which are lost if users of products are uncertain about TSCA reporting obligations.	FPA submits that the reporting burden for this rule was underestimated, and is exacerbated because of the rule’s lack of clarity with regard to users who also made be processors exposes them to liability for information not supplied by manufacturers. TSCA reporting violations are \$10,000 per incident and result in further injury to a company’s reputation.



NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
11. Replace and/or Modify Applicability of Compliance Testing Method 25A to VOCs and VOHAP (applicable to oxidizers and required for MACT compliance testing under 40 CFR Part 63, Subparts KK (Publishing and Printing) and JJJ(Paper and other Web Coatings)	40 CFR Part 51, Appendix M; 40 C.F.R. §§ 63. 63.3370(k). EPA should remove the 50 ppm applicability limit as a requirement for use this method. The number was arbitrarily chosen without scientific support. Method 25 is much more expensive to run than Method 25A (possibly around 50-100% more), takes more time to run and is more prone to errors. This leads to longer non production related operation of the equipment, and potentially having to conduct additional testing if errors are found. It takes up to a month to get even preliminary Method 25 results, while preliminary Method 25A results can be obtained in real time while the test firm is on site. This allows a site to immediately respond to any identified issues and potentially continue testing until enough valid information is collected. With Method 25 an entirely new mobilization by the stack testing company is required which imposes significant costs on the company needing the testing.	(iii) Imposes economic costs that exceed benefits	Method 25 is much more expensive to run (possibly around 50% more) than Method 25A, also applicable to VOC testing under 40 CFR Parts 51-52.It takes more time to run and is more prone to errors and potentially having to conduct additional testing if errors are found. It takes up to a month to get even preliminary Method 25 results, while preliminary Method 25A results can be obtained immediately while the test firm is on site. Also important, the method itself also leads to longer downtime in operation of processes resulting in substantial further costs.



NAME OF REGULATION – Brief Description	CITATION to CFR & FED REG. DESCRIPTION OF ISSUE	(i)-(vi) criteria listed at 82 Fed. Reg. 17,793, Col.3	Cost Savings/Economic Impact Information
12. Repeal applicability of CAA PM_{2.5} SIP Implementation (including PM_{2.5} NSR applicability) to VOCs and Ammonia and Reinstitute PM_{2.5} Surrogacy Policy until Air Dispersion Modeling for Secondary Air Pollutants is Available at a Reasonable Cost.	Clean Air Act, 42 U.S.C. §§ 7410(m), 7475(c) (NAAQS Pollutants, SIP Modeling and PSD Modeling Requirements) 40 C.F.R Subpart Z—Provisions for Implementation of PM _{2.5} National Ambient Air Quality Standards §51.1000 Definitions; <u>81 Fed. Reg. 58,010 (Aug. 24, 2016)</u> (<i>Fine Particulate Matter NAAQS : State Implementation Plan Requirements</i>). 40 C.F.R. § 51.1000 defines PM _{2.5} precursors and § 51.106 allows States that don't want to regulate VOCs and NH ₃ to submit for EPA approval expensive complex air dispersion modeling demonstrating that VOCs and NH ₃ from all existing stationary, area, and mobile sources in the nonattainment area do not contribute significantly to PM _{2.5} levels that exceed the standard.	(iii) Imposes economic costs that exceed benefits i) Eliminates jobs, or inhibits job creation; PSD single source air dispersion models are <i>not</i> available for modeling secondary PM _{2.5} formation from ozone and NH ₃ EPA's Technical Assistance Document (TAD), https://www.epa.gov/nsr/draft-guidance-comment-significant-impact-levels-ozone-and-fine-particle-prevention-significant , is not sufficient and in fact underscores the difficulty of a case-by-case approach to air dispersion modeling for secondary pollutants such as PM _{2.5} .	The cost to new manufacturing facilities and expansion of existing facilities for creating a source-specific model for fine particulate that is secondarily formed through dozens of atmospheric reactions that are dependent on meteorology, geography, and wind costs roughly \$100,000 per source. Delays in permitting occasioned by EPA case-by-case approval of the model can cost hundreds of thousands of dollars and does not ensure approval.
13. Replace the Significant Impact Level ("SIL") for Nitrogen Dioxide.	CAA, 42 U.S.C. §§ 7410(m); 7475(c); 40 C.F.R. § 52.21(b)(23)(iii); 51.166(k), Part 51, Appendix ;W 75 FR 6474 (Feb. 9, 2010)(<i>"Revision of NO₂ NAAQS"</i>); EPA, <i>"General Guidance for Implementing the I-hour NO₂ NAAQS in Prevention of Significant Deterioration Permits, Including an Interim I-hour NO₂ Significant Impact Level"</i> (June 28, 2010).	(iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies The NO ₂ SIL should be raised. It is so low that new pollution control equipment, like an oxidizer for VOC pollution	In order to obtain a NSR permit under the CAA, an applicant must demonstrate that the proposed emissions from a new major source or major modification will not violate a NAAQS or a NAAQS increment. If that cannot be done, a source, including a pollution control that is based on burning



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NO₂ SILs cont'd.		control, that has less than a 10 MMBTU/hr. heat input capacity and a 45' stack fails to pass the PSD model screening limits and must therefore obtain a PSD permit .	fuel and pollutants cannot be permitting in the U.S. Since the SIL is so low, EPA published the cited guidance to develop a modeling “work around” for the NSR ambient air quality analysis, but it costs thousands of dollars more in modeling resources and requires a case-by-case EPA approval <i>and importantly often fails</i> . There are no NO2 nonattainment areas in the country, and no ambient air monitors can detect excess NO2 so the SIL can safely be increased to support domestic manufacturers with state of the art pollution equipment.



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14. Repeal the Regulation of Non-Ozone Depleting Substitutes under Title VI Refrigerant Management Rule and “SNAP” Program that are Greenhouse Gases.	<p>Clean Air Act Title VI, 42 U.S.C. §§ 7671-7671q (“Regulation of Ozone Depleting Substances (ODS)”); [1] 40 C.F.R. §§ 82.151 (def.); 156-157 as amended by 81 Fed. Reg. 82,272 (Nov. 18, 2016) (“Protection of Stratospheric Ozone: Update to the Refrigerant Management Requirements Under the Clean Air Act”) and [2] 40 C.F.R. Part 82, Subpt G (SNAP Program), App B; 81 Fed. Reg. 86, 778 (Dec. 1, 2016) (“Protection of Stratospheric Ozone: New Listings of Substitutes; Changes of Listing Status and Reinterpretation of Unacceptability for Closed Cell Foam Products under the Significant New Alternatives Policy Program (SNAP); and Revision of Clean Air Act Section 608 Venting Prohibition for Propane”)</p> <p>The winter 2016 Ozone Depleting Substances (“ODS”) regulations were illegally revised by the last Administration to impose significant new regulatory requirements, including but not limited to leak, detection and repair and reporting programs, for <i>non</i>-ODS substitutes like GHGs and also bans and phase-outs for certain <i>non</i>-ODS</p>	<p>(vi) derive from or implement Executive Orders or other Presidential directives that have been subsequently rescinded or substantially modified.</p> <p>(iii) Imposes economic costs that exceed benefits</p> <p>CAA Sections 608 and 612 are designed to implement the Montreal Protocol in the 1990 Clean Air Act Amendments, and the recent “amendment” to the Protocol agreed to by the U.S. in Kigali, Rwanda in Fall 2016 must be presented to the U.S. Senate for ratification before the Congress can amend the Act to regulate non-ODS substitutes including GHGs under the refrigerant management and/or SNAP program.</p>	<p>Without consideration of benefits using the “social cost of carbon,” the Regulatory Impact Assessment for the Section 608 Refrigerant rule suggests that the costs of both the refrigerant management rule and the SNAP rule far exceed their benefits.</p> <p>Replacement of comfort cooling, industrial refrigeration process units for manufacturers who relied on agency assurances that replacement of non-leaking equipment with non-ODS substitutes would provide long-term assurances and certainty to industry. It is not clear that substitutes like propane and other flammable VOCs are either safe or provide reliable cooling needs.</p> <p>Also note that this regulation applies to institutional (hospital, church, school, government, etc.-owned air conditioners).</p>



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	substitutes including GHGs in certain appliances. These appliances may have charges as low as 5 to 100 lbs. The largest units have up to 500 lb. charges. Few would be expected to have catastrophic leaks and lost their charges.		
15. Modify RCRA Improvement Rules by Removing Requirement for 4 year Re-notification of States Emergency Coordinators and Semi-annual Re-Notification by Small Quantity Exempt Generators.	Resource Conservation and Recovery Act, (“RCRA”), 42 U.S.C. §§ 6912(a), 6921–6927; 40 CFR §§ 262.18(d), 263.41 “Generator Standards”. 81 Fed. Reg. 85,732, 85,777, 85,802. (Nov. 28, 2016). The RCRA Improvement Rule contains requirements for re-notification of SQG status using Form 8700–12.every four years and re-notification of LQG status every two years. These forms require detail regarding hazardous waste streams generated and non-applicability waste determinations.	(iii) Imposes economic costs that exceed benefits State and Local Emergency Planners dispute whether these re-notifications have any merit, particularly for SQGs, and believe that because they have no benefit they impose management and resource burdens on regulators’ part in addition to the burdens to regulated industries.	The time that it will take a SQG to update a Quick Reference Guide for emergency management services will cost about \$5,000 per plant. The re-notifications impose a burden to industry, state and local Emergency planners, and EPA. Since EPA cannot stay up with changes requiring existing notifications by LQGs, why are they creating additional notifications that they have no time to enter into national databases?



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16. DEFEND and IMPLEMENT the Legitimate Recycling Exemption in the Definition of “Solid Waste Definition” to Ensure State Regulators and Inspectors Understand Distillation of a Secondary Waste is Part of the Recycling Process.	RCRA, 42 U.S.C. 6921, Solid Waste Disposal Act, 42 U.S.C. 6903 (<i>Definition of Solid Waste</i>); EPA revised the conditional exclusion from the definition of solid waste at 40 CFR 261.4(a)(23) for hazardous secondary materials that are legitimately reclaimed by recycling. See 80 FR 1694, 1703-1706. (Jan. 13, 2015) (under review in <i>American Petroleum Institute v. EPA</i> , D.C. Cir. Case No. 09-1038), include attacks on the “legitimate recycling exemption.” (Argument was held on November 3, 2016 and a decision would be expected by Dec. 2017).	(iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies States are mandated to adopt the DSW rules including the rule for legitimate recycling, but ongoing litigation has impaired EPA’s ability to train State enforcement officers who must implement the law (which was not stayed by the Courts). Policy clarifications would help assure that the goals of the law are realized and consistent for recycling onsite.	Fully realizing the benefits, both monetary and environmental, in the Exemption for Legitimate Recycling from RCRA and SWDA definitions of discarded hazardous wastes would be beneficial to many industries and promote reuse of solvents in managed business settings where these secondary materials are generated. Improper citations and civil penalties by untrained local inspectors and state officials are costly to a company, workers, and company reputations.
17. Prioritize Rules & Policies to Streamline TSCA PMN Approvals for New Chemical Substances and Uses under the Frank Lautenberg Amendments to the Toxic Substances Control Act.	TSCA, 15 U.S.C. § 2605(a)(3) now requires EPA to review a submitter’s section 5 pre-manufacturer notice (PMN) and make an affirmative finding on the safety of new chemical substances or significant new uses of existing chemicals submitted under section 5(a) of TSCA before they can proceed to the marketplace. The implementation of this new requirement has slowed hundreds of “new substances” and SNURs for “new uses” to a virtual crawl before being approved for the marketplace.	(iv) Creates a serious inconsistency or otherwise interfere with regulatory reform initiatives and policies. Case-by-case safety determinations by EPA under the amendments to the PMN provisions are unnecessary and are creating a substantial barrier to the market for new inks and coatings developed for domestic manufacturers like	Manufacturers of many products are dependent in the global marketplace on new chemical substances that provide superior functionality to their products. The new law is effectively slowing the purchase and use of these new materials by industries that manufacture flexible packaging and we encourage EPA to make “TSCA 5a3” determinations and streamlining a priority in implementing the new law.



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		flexible packaging manufacturers, particularly since these innovations may become available elsewhere in the world.	



To: Weinstock, Lewis[Weinstock.Lewis@epa.gov]; Sharac, Timothy[Sharac.Timothy@epa.gov]; Brown, Ethan[Brown.Ethan@epa.gov]; Payton, Richard[Payton.Richard@epa.gov]; Hanley, Tim[Hanley.Tim@epa.gov]; Rice, Joann[Rice.Joann@epa.gov]; Trinca, Laurie[Trinca.Laurie@epa.gov]; Cavender, Kevin[Cavender.Kevin@epa.gov]; Watkins, Nealson[Watkins.Nealson@epa.gov]; Papp, Michael[Papp.Michael@epa.gov]
From: Karen Mongoven
Sent: Thur 6/15/2017 3:59:16 PM
Subject: REVISED Agenda for 6/15 NACAA Monitoring Committee Call
[Agenda Monitoring-June2017-EPA-v2.pdf](#)

All:

Please find attached a revised agenda for today's NACAA Monitoring Committee call (at 1:30 p.m. ET), with the title of Tim Hanley's presentation corrected and a link to his slides.

From: Karen Mongoven
Sent: Tuesday, June 13, 2017 5:03 PM
To: Lew Weinstock - U.S. EPA - OAQPS (weinstock.lewis@epa.gov); Tim Sharac (sharac.timothy@epa.gov); Ethan Brown (brown.ethan@epa.gov); Richard Payton (payton.richard@epa.gov); Tim Hanley - U.S. EPA (Hanley.Tim@epa.gov); Rice, Joann; Laurie Trinca (trinca.laurie@epa.gov); Kevin Cavender (cavender.kevin@epa.gov); Nealson Watkins (watkins.nealson@epa.gov); Michael Papp (papp.michael@epa.gov)
Subject: Agenda for 6/15 NACAA Monitoring Committee Call

Hello everyone,

The EPA portion of the agenda for Thursday's NACAA Monitoring Committee call (day-after-tomorrow **Thursday, June 15 beginning at 1:30 p.m. Eastern**) is attached.

Please use the following dial-in number:

Ex. 6, access code **Ex. 6**

We look forward to talking with you as always!

-Karen

* * *

Karen K. Mongoven

Senior Staff Associate

National Association of Clean Air Agencies

444 North Capitol Street, NW, Suite 307

Washington, DC 20001

Phone: **Ex. 6**

Fax: (202) 624-7863

kmongoven@4cleanair.org

NACAA MONITORING COMMITTEE

Conference Call

Thursday, June 15, 2017

1:30 p.m.–2:30 p.m. ET

Call-In Number: Ex. 6 **Access Code:** Ex. 6

Press *6 to mute, *7 to unmute

Monitoring Committee Co-Chairs

Sam Rubens (Akron, OH)

Heidi Hales (Vermont)

AGENDA

With EPA:

1. Roll Call
2. PM_{2.5} FRM Data Quality Assessment Application (Tim Hanley, EPA OAQPS)
 - Slides:
http://www.4cleanair.org/sites/default/files/Documents/PM25_FRM_Assessment_Tool_for_NACAA_061517.pdf
3. Impacts of the 2015 Ozone NAAQS implementation delay (Joann Rice and Lewis Weinstock, EPA OAQPS)
4. PAMS implementation update (Kevin Cavender and Laurie Trinca, EPA OAQPS)
5. Ozone: Update on Office of Inspector General investigation, EPA response and related issues (Mike Papp and Lewis Weinstock, EPA OAQPS)
6. SO₂ monitoring, the AQI and AIRNOW (Lewis Weinstock and Nealson Watkins, EPA OAQPS)

To: Weinstock, Lewis[Weinstock.Lewis@epa.gov]; Sharac, Timothy[Sharac.Timothy@epa.gov]; Brown, Ethan[Brown.Ethan@epa.gov]; Payton, Richard[Payton.Richard@epa.gov]; Hanley, Tim[Hanley.Tim@epa.gov]; Rice, Joann[Rice.Joann@epa.gov]; Trinca, Laurie[Trinca.Laurie@epa.gov]; Cavender, Kevin[Cavender.Kevin@epa.gov]; Watkins, Nealson[Watkins.Nealson@epa.gov]; Papp, Michael[Papp.Michael@epa.gov]
From: Karen Mongoven
Sent: Tue 6/13/2017 9:03:27 PM
Subject: Agenda for 6/15 NACAA Monitoring Committee Call
[Agenda Monitoring-June2017-EPA.pdf](#)

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We look forward to talking with you as always!

-Karen

* * *

Karen K. Mongoven

Senior Staff Associate

National Association of Clean Air Agencies

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Washington, DC 20001

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kmongoven@4cleanair.org

NACAA MONITORING COMMITTEE

Conference Call

Thursday, June 15, 2017

1:30 p.m.–2:30 p.m. ET

Call-In Number: **Access Code:**

Press *6 to mute, *7 to unmute

Monitoring Committee Co-Chairs

Sam Rubens (Akron, OH)

Heidi Hales (Vermont)

AGENDA

With EPA:

1. Roll Call
2. Demonstration of PM_{2.5} Continuous Monitor Comparability Assessments (Tim Hanley, EPA OAQPS)
 - Link: <https://www.epa.gov/outdoor-air-quality-data/pm25-continuous-monitor-comparability-assessments>
 - *Slides to be distributed in advance of call*
3. Impacts of the 2015 Ozone NAAQS implementation delay (Joann Rice and Lewis Weinstock, EPA OAQPS)
4. PAMS implementation update (Kevin Cavender and Laurie Trinca, EPA OAQPS)
5. Ozone: Update on Office of Inspector General investigation, EPA response and related issues (Mike Papp and Lewis Weinstock, EPA OAQPS)
6. SO₂ monitoring, the AQI and AIRNOW (Lewis Weinstock and Nealson Watkins, EPA OAQPS)

To: training@marama.org[training@marama.org]
From: Weinstock, Lewis
Sent: Wed 11/30/2016 1:46:48 PM
Subject: Monitoring Meeting presentation - LWeinstock #1
MARAMA - Weinstock - Ambient Monitoring Update - Dec 2016 - Final.pptx

Hi:

Here is my presentation for Wednesday – EPA Updates.

The other more technically oriented presentations should hopefully be ready on Friday as promised. Worst case, I'll bring on a memory stick.

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|



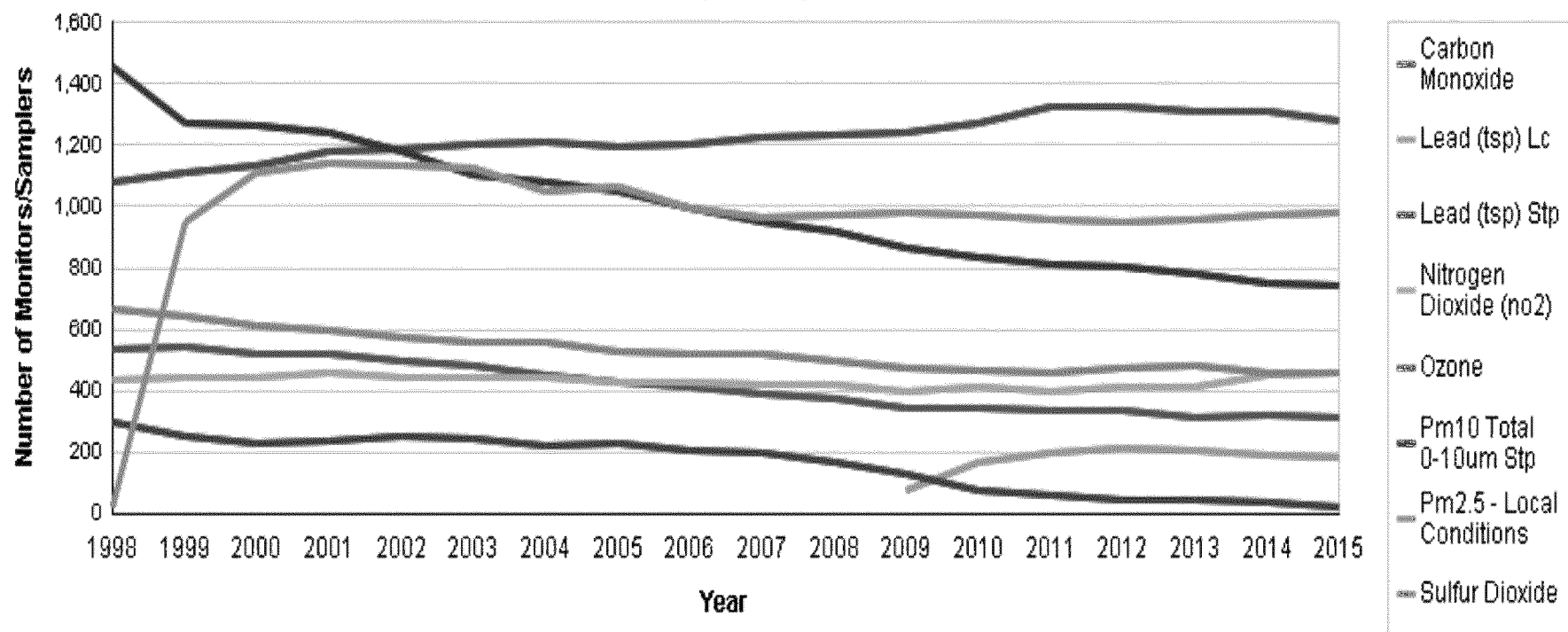
OAQPS Ambient Monitoring Update

MARAMA Monitoring Committee Workshop - December 2016

Lewis Weinstock
Office of Air Quality Planning and Standards

The Robust Monitoring Network Remains Important

Number of Monitors/Samplers by Criteria Pollutant 1998 - 2015



Our Priorities

- Finding efficiencies
- Keeping the networks relevant
- Improving QA programs
- Supporting responses to localized air quality problems



Ambient Monitoring Rule (1 of 2)

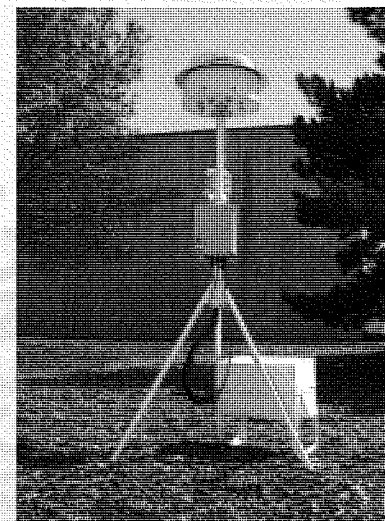
- Published March 28, 2016
 - <https://www.gpo.gov/fdsys/pkg/FR-2016-03-28/pdf/2016-06226.pdf>
- Better aligned definitions with AQS
- Additional flexibility for manual PM_{2.5}/CSN sampling frequency
- Reduced data certification requirements
- Reduced data reporting requirements
- Eliminated Lead (Pb) at urban NCore stations
- Restructured QA appendices for clarity
- Eliminated national QA requirements for PM_{10-2.5}
- Additional flexibility for QA on PSD projects; moved requirements back into Appendix B

Ambient Monitoring Rule (2 of 2)

- Required Annual Monitoring Network Plan comments to be collected at the state level and sent with ANP to EPA
- Clarified period of increased PM_{2.5} sampling when triggered by DV's
- Required reporting of flow rate verifications to AQS
- Expanded Annual Performance (PE) audit levels and required some points to occur at lower concentrations
- Reporting of QMPs and QAPPs approval dates to AQS
- Completing the Ambient Air Protocol Gas Survey and participating in the program at the request of EPA every 5 years

Chemical Speciation Network (CSN) Update

- 2014 CSN Assessment Results:
 - CSN PM_{2.5} mass measurement eliminated
 - 38 CSN Sites defunded
 - Sample frequency reduced at 3 CSN Sites
 - Carbon blank collection frequency reduced
 - Icepacks in shipment reduced during cooler months
- 2015 IMPROVE Protocol Assessment Results:
 - 8 IMPROVE Protocol Sites defunded



CSN & IMPROVE Protocol Assessment Website

<https://www.airqa.org/csna>

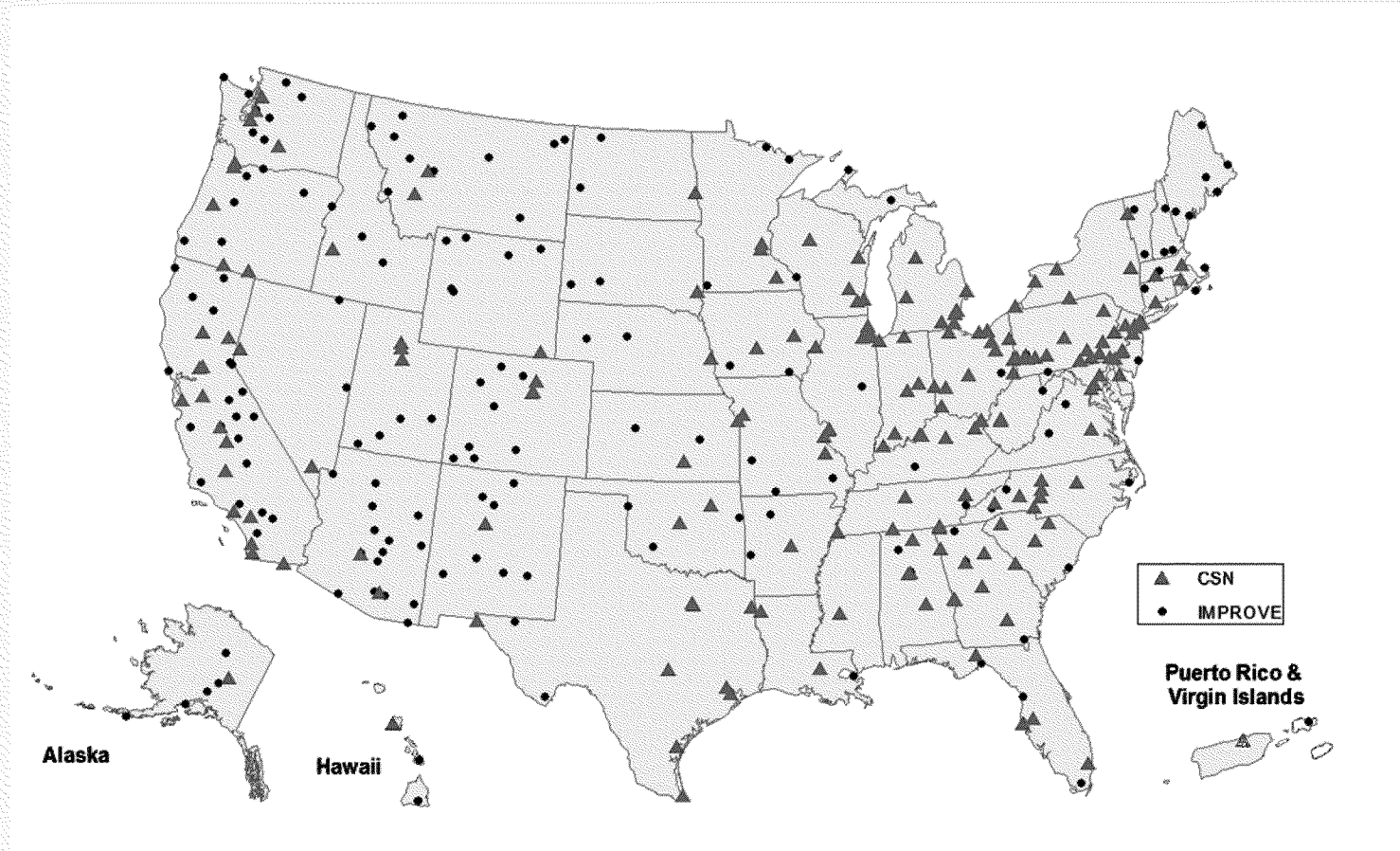
CSN Contract Transition

- RTI served as the national contract laboratory from 1999 – 2015
- In September 2015, the contract was split into 2 pieces and awarded to:
 - Amec Foster Wheeler – shipping, handling and gravimetric mass contract
 - UC Davis – laboratory analysis contract
- STI has updated the Data Analysis and Reporting Tool (DART) to accommodate CSN data for validation purposes
 - Data reported through March 2016 as the catch-up period following transition continues



Source:
<http://suzannewoodsfisher.com/blog/2008/06/the-worlds-most-confusing-traffic-sign/>

Current Speciation Networks



CSN/PM Reinvestment

- Resources available from the assessment are being used to fund:
 - FT-IR research for carbon aerosol analysis
 - Purchase of MetOne SuperSASS for all 1-in-3 CSN sites with SASS (to allow for sequential sampling)
 - Purchase of additional VSCC's to replace remaining WINS
 - Development/improvement of DART for CSN
 - Investigation of Transmissometer measurements on Teflon filters and best options for reporting of data
- OAQPS is considering a meeting with the CASAC AMMS in 2017 to discuss technical issues

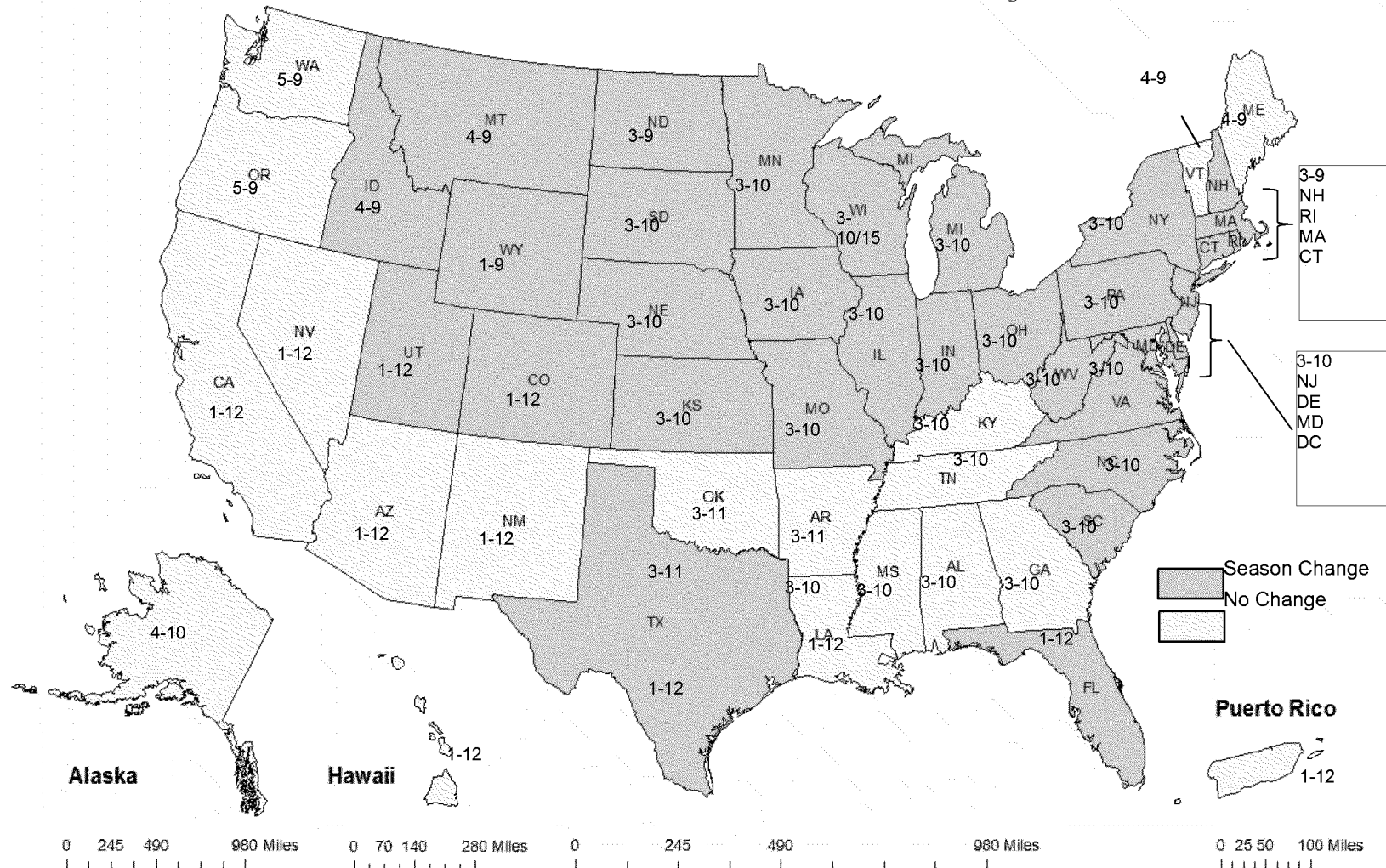
Ozone NAAQS Final Rule and Monitoring Changes

- Final rule signed October 1, 2015
- NAAQS final rule addresses monitoring and data handling including:
 - Updates to the Photochemical Assessment Monitoring Stations (PAMS)
 - Extension of the ozone monitoring season in 32 states and D.C.
 - New Federal Reference Method (FRM) for ambient measurements of ozone while retaining existing FRM and Federal Equivalent Methods (FEMS)
 - Existing FEMs can continue to be used for monitoring
 - Revisions to the Part 53 FEM performance testing requirements to be more in line with technological advancements and current ozone monitor performance
 - New data handling requirements in Appendix U

Ozone Monitoring Seasons

- Final rule extends the ozone monitoring season for 32 states and the District of Columbia
 - Year-round ozone seasons for all NCore multi-pollutant sites
- All waivers were revoked when the rule became effective December 28, 2015
 - States with existing waivers should pursue new waivers through the Regional Administrator (RA) as appropriate
 - RAs can still approve changes to states' ozone monitoring seasons without rulemaking
 - Reg 9 has developed an SOP that is being shared
- New season requirements and year-round monitoring at NCore will become effective January 1, 2017

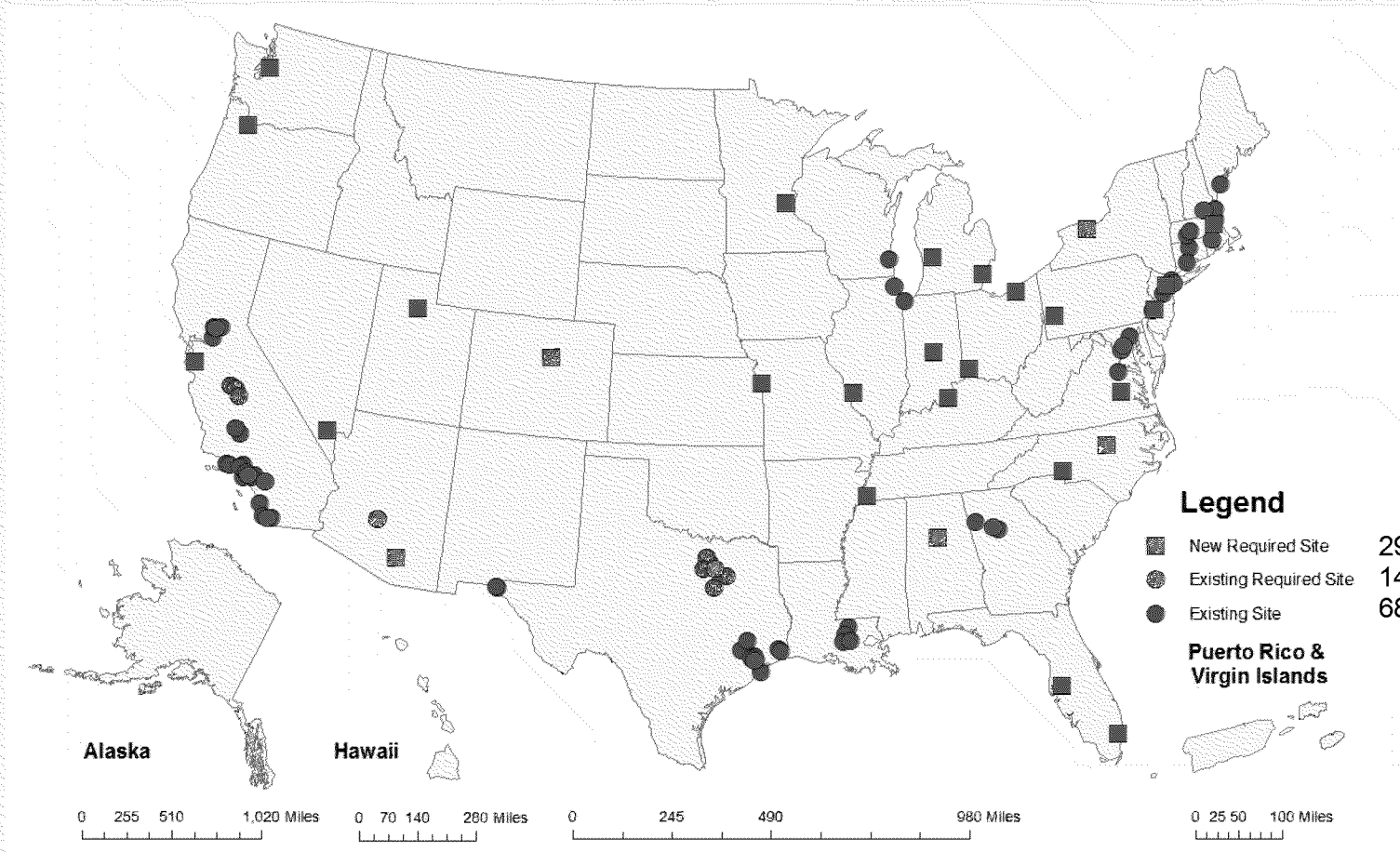
Ozone Seasons: Finalized Requirements



PAMS Network Update

- PAMS Requirements revised in October 2015
- PAMS measurements to be taken @ NCore sites in CBSAs with 1,000,000 or more people
 - Revised PAMS measurements include:
 - Hourly VOC measurements
 - Carbonyl measurements
 - True NO₂ measurement
 - Ozone and NO_y
 - Hourly mixing height measurement and other meteorology parameters
- States with moderate or above 8-hour ozone non-attainment areas required to develop a Enhanced Monitoring Plan (EMP) for ozone and its precursors

Updated PAMS Map



PAMS Timeline and Milestones

- PAMS plan due July 1, 2018 as part of Annual Network Plan
 - Consider moving this up to July 1, 2017 if waivers are needed
 - Also consider status of legacy PAMS and discuss priorities with RO's; there are options for divestment here
- PAMS monitoring at NCore sites will need to start by June 1, 2019
 - ***We have successfully identified states to be early implementors and start getting equipment installed in 2017 and 2018***
- EMPs submitted within two years of designations or by October 1, 2019, whichever is later

EPA Commitments on PAMS

- PAMS Funding reallocation
 - Start in 2017, and spread over multiple years
- National Procurements for autoGCs, true NO₂, and ceilometers
- Guidance documents
 - Technical Assistance Document
 - Generic QAPP
 - SOPs for autoGCs, true NO₂, and ceilometer
 - EMP Guidance
- National QA Program
- Training, Training, and more Training!
 - Data Validation/Reporting
 - AutoGC operation
 - Mixing height/Ceilometer

QA Challenges

- Staffing transitions – loss of organizational history and FTE's
- Ambient signal is diminishing – challenging procedures and metrics
- Guidance documents must evolve
- Stakeholder involvement is increasing
- Gap filling – improving QA on NATTS and addressing PAMS
- Becoming efficient, e.g., using the LEAN process

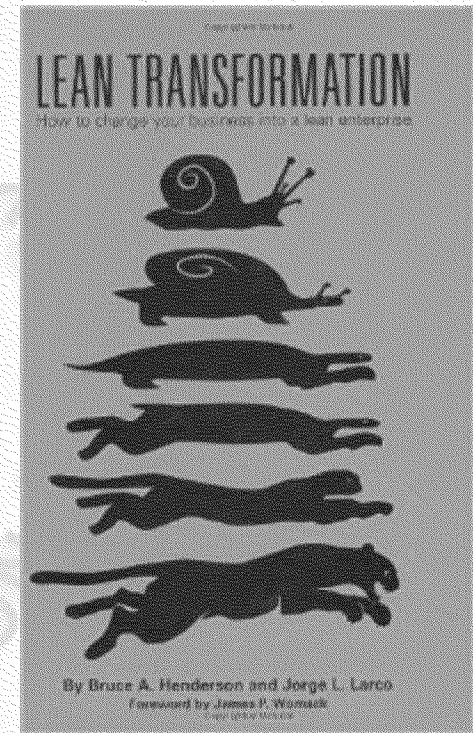
Using the LEAN process to re-invent the PM2.5 PEP, NPAP, Pb-PEP QA Programs

The new programs will be:

- **More Efficient** – automation, real-time data review, conditional checks
- **Cheaper** – less contract support at OAQPS
- **Timely** – automated data upload to AQS
- **More Consistent** – increased standardization
- **Sustainable** – Software developed and maintained in-house
- **Modern** – programs are Tablet computer optimized

NPAP has been completed and is being used now.

PM_{2.5} and Pb will be implemented in 2017



Source: <http://www.thebookpatch.com/BookStore/lean-transformation/58d2c280-68d3-4b84-b8db-c5ae39260de3>

The TSA Workgroup

Has worked together to develop guidance to conduct consistent TSAs

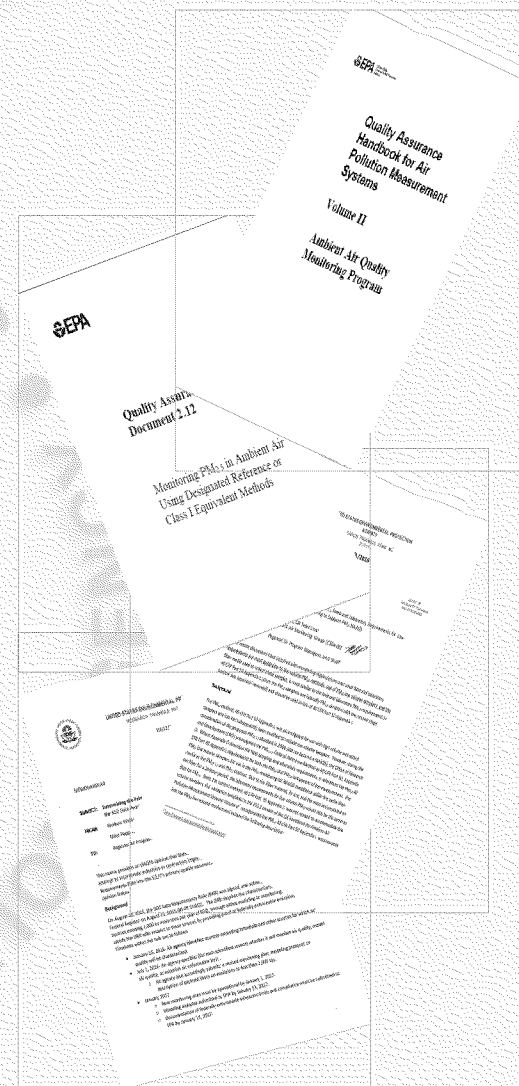
- Input from all regions in developing a TSA Guidance Document for conducting TSAs
- Consistent approach
- Definition and emphasis on audit independence
- Modified and portable TSA Questionnaire
- Use of AQS to help prepare for audits

Plans to develop tools to help digest data more efficiently using R and other software

In the future, will provide technical training for auditors on monitoring equipment to build expertise

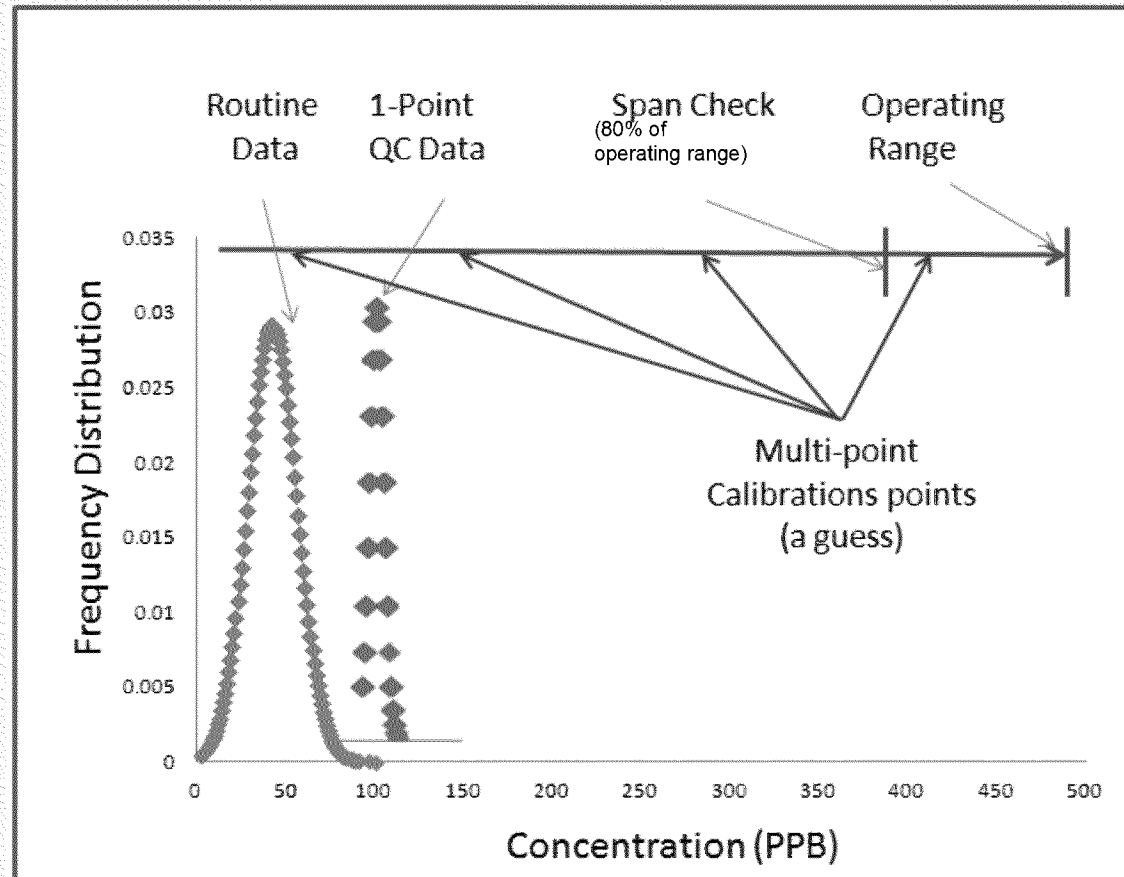
New Guidance Documents On AMTIC

- Quality Assurance Guidance Document 2.12
- Guidance on Statistics for Use of 1-Point QC Checks at Lower Concentrations
- Technical Note Related to PSD Monitoring Quality Assurance Activities
- Technical Guidance on the Use of Electronic Logbooks for Ambient Air Monitoring
- Technical Guidance on Annual PE Audit Levels Using Method Detection Limits
- Clarification on Use of PM2.5 Field and Laboratory Requirements for Low Volume PM10 Monitoring to Support PM10 NAAQS
- Determining the Primary Quality Assurance Organizations for Industrial Monitors in Support of the SO2 Data Requirements Rule



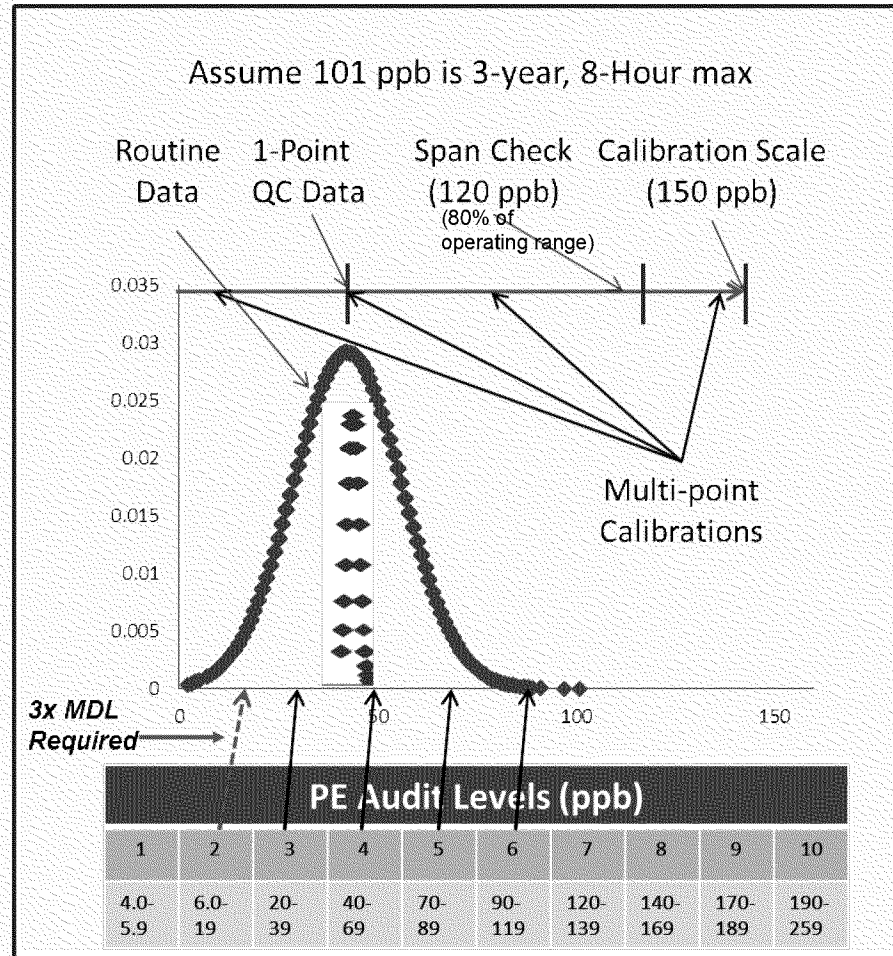
Changing the Paradigm – Adjusting to Improved Air Quality

Historical Model



Changing the Paradigm – Adjusting to Improved Air Quality

Current Model



MegaPE CSN Program oversight transitioned from ORIA/NAREL to OAQPS

- First set of PE's anticipated early 2017

Gravimetric Inter-Laboratory Comparison Study (PM2.5 Round Robin)

- First set anticipated early 2017
- Biannual evaluation

CSN field QAPP revisions

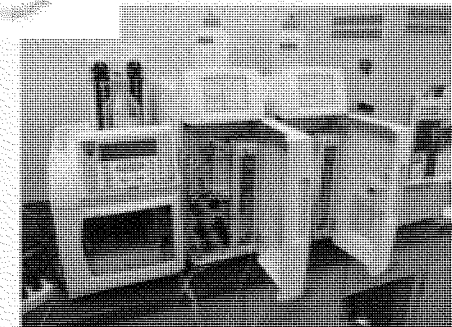
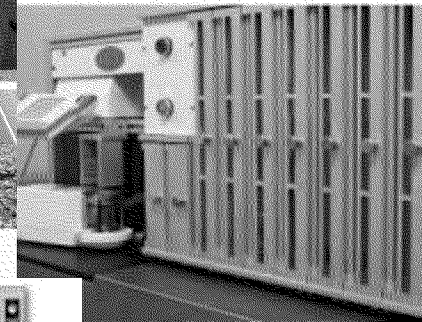
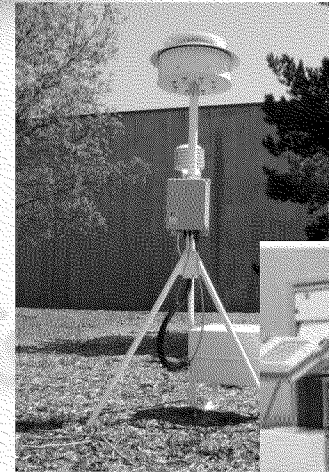
- Update of SOPs and QA activities

IMPROVE Field QA Training

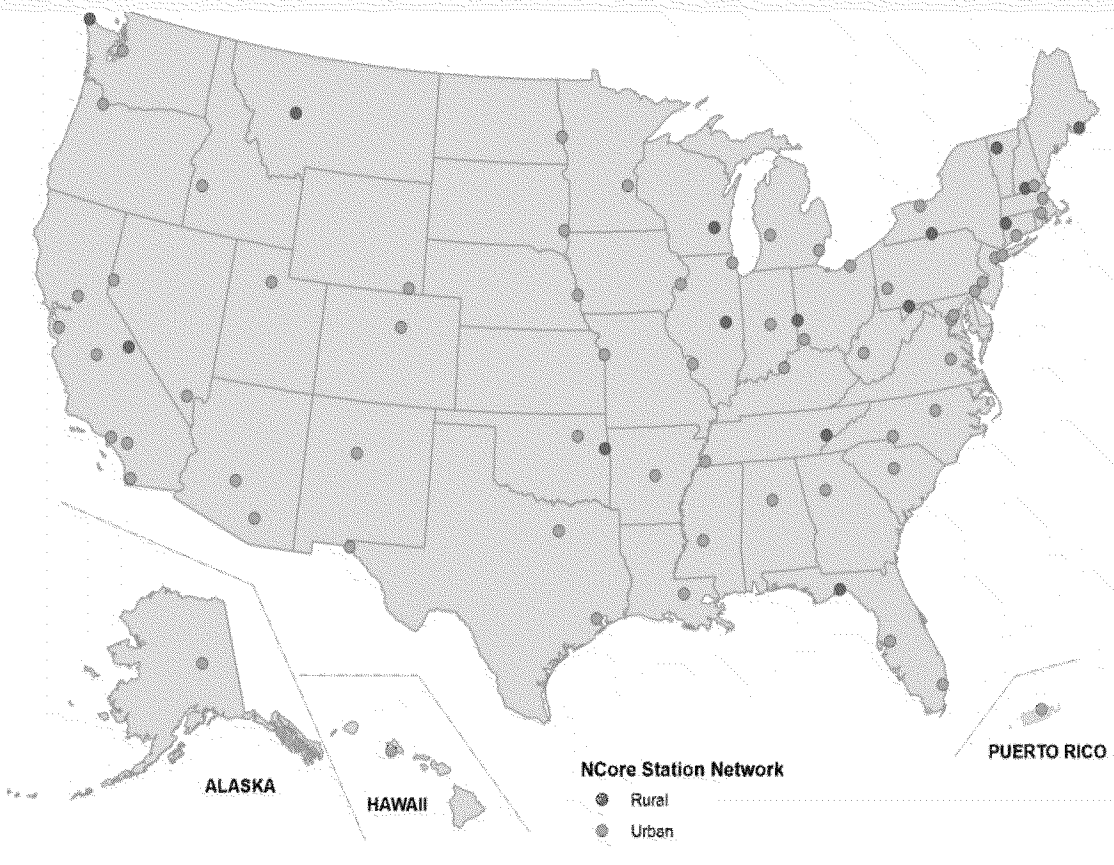
- Transitioned to National Park Service

Protocol Gas Verification Program

- Required survey and cylinder participation



The National Core (NCore) Monitoring Network



- NCore is a mature network
 - 78 stations
 - 63 urban and suburban
 - 15 rural
 - WV, PR, FL (2 sites) added in 2014
 - One site move planned in 2016 for ND.
- NO_y measurements
 - Expect lots of collocation between NCore and PAMS
 - New information on calibration of NO_y method in presentation this afternoon by Russell Long
 - Value of data when collocated with “true” NO₂ in Wednesday afternoon PAMS session presentation by Tim Hanley
- Lead (Pb) measurements
 - Requirement for Lead at NCore revoked in recent final rule. Work with your Region, where applicable, if seeking a request to shut down lead sampling at NCore.
- Keep an eye on the age and condition of your original trace level instruments

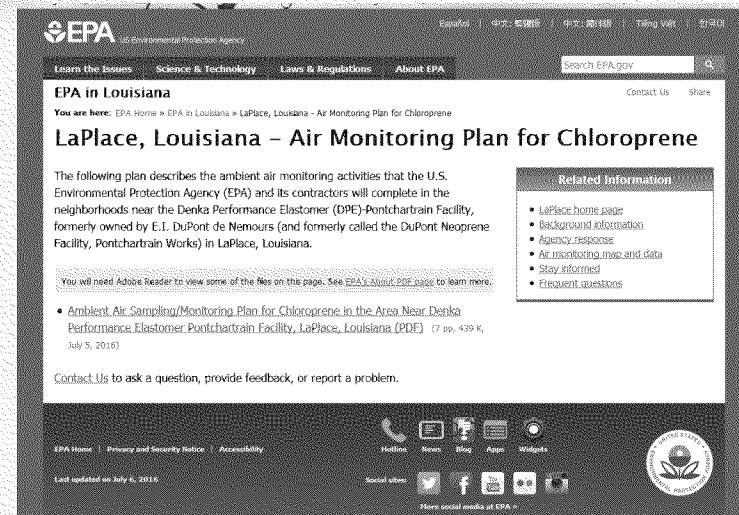
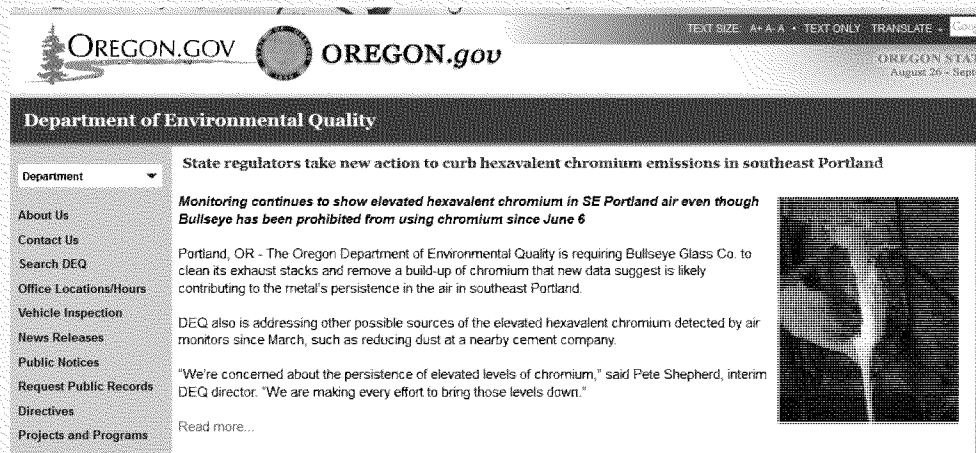
Near-road NO₂ Network Status

- Currently, the EPA estimates that there are 68 operational near-road monitoring sites
- Phase 1 sites: 48 of 52 sites operational
 - Missing CBSAs: Chicago, Orlando, Salt Lake City, Virginia Beach
- Phase 2 sites: 17 of 23 sites operational
 - Missing CBSAs: Boston, Chicago, Miami, New York, San Diego, San Juan
- Phase 3 sites: Boise, Des Moines, and Fresno are operational
 - Bakersfield scheduled
- Final rule addressing changes in Phase 3 requirements under internal review

Responding to localized air quality problems

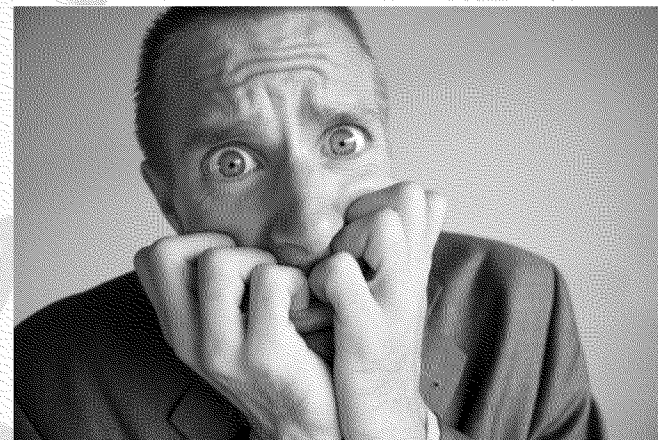
OAQPS Role in Monitoring

- Funding support
- Assistance with method evaluations and monitoring plans
- Contractual support
- Data analysis and validation



Current and Longer term Monitoring Concerns (Lew's List)

- Monitoring agency staff transition and training
- Undiscovered QA issues
- Aging equipment/lack of investment
- Methodological challenges with a cleaner atmosphere
- Integrating sensor data into routine operations





Questions?

To: Karen Mongoven[kmongoven@4cleanair.org]
From: Weinstock, Lewis
Sent: Tue 6/13/2017 7:41:16 PM
Subject: RE: MSC suggestions for Monitoring call

A couple of small edits in red. Tim will have a short slide deck to distribute for #2 – hopefully available tomorrow.

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|

From: Karen Mongoven [mailto:kmongoven@4cleanair.org]
Sent: Tuesday, June 13, 2017 2:56 PM
To: Weinstock, Lewis <Weinstock.Lewis@epa.gov>
Subject: RE: MSC suggestions for Monitoring call

Do these headings for the EPA portion of the agenda look good to you? Happy to take any suggested edits (especially for items 5 and 6).

1. Roll Call
2. Demonstration of PM_{2.5} Continuous Monitor Comparability Assessments (Tim Hanley, EPA OAQPS)
3. Impacts of the 2015 Ozone NAAQS implementation delay (Joann Rice and Lewis Weinstock, EPA OAQPS)
4. PAMS implementation update (Kevin Cavender and Laurie Trinca, EPA OAQPS)

5. Ozone: Update on Office of Inspector General investigation, EPA response and related issues (Mike Papp and Lewis Weinstock, EPA OAQPS)

6. SO₂ monitoring, the AQI, and AIRNOW (Lewis Weinstock and Nealson Watkins, EPA OAQPS)

From: Weinstock, Lewis [mailto:Weinstock.Lewis@epa.gov]
Sent: Tuesday, June 13, 2017 1:13 PM
To: Karen Mongoven
Subject: RE: MSC suggestions for Monitoring call

Karen:

Here is my suggestion for the call on Thursday. Kevin recommended that we take Dirk's technical "teflon in the inlet system" issue off-line as nothing has been decided yet and their PAMS workgroup is still considering the issue.

For the items below, I'll let you fine-tune the agenda topic/titles as you see fit. After Tim's topic, we can only guess at the length of time required. We will just go with the flow of the conversation until the questions run out and/or you pull the plug on it. Sound ok?

1. Demonstration of PM_{2.5} Continuous Monitor Comparability Assessments - <https://www.epa.gov/outdoor-air-quality-data/pm25-continuous-monitor-comparability-assessments>

>Tim Hanley (20 mins)

2. **Impacts of the 2015 O₃ NAAQS implementation delay?** We realize you (EPA

monitoring group) may not be ready to describe all the impacts of that decision in the broader context, but an up to the minute conversation on what you do understand and how you will be working to completely understand and convey the impacts of this delay would be very helpful.

>**Joann Rice/Lewis Weinstock**

3. **PAMS**-- is it going to happen? Did the delay in designation also delay implementation? There's not much time left to get funds to the early adopters. (I know you are not ready to talk about funding specifically so maybe there isn't much to say but wanted to put this out there)

>**Kevin Cavender/Laurie Trinca**

4. **Ozone** – “EPA and the 7% PC seems to be an ongoing issue. Some states use internal zero span options within their analyzers which may or may not meet the 7% spec but the instrument then meets the 7% when an external calibrator is used.” (Dirk's opinion: “The EPA should not use PCs as the final word on whether an instrument is performing adequately.”)

>**Mike Papp/Lewis Weinstock.**

5. From Dave: “We are measuring SO2 violations around a source in Western Maryland now are wondering who else may be doing the same and how are they reporting the AQI in the affected area. We would like to use AirNow, but it is currently not set up to do that for SO2. We would also like Enviroflash alerts for SO2 to be available.”

>**Lewis Weinstock/Nealson Watkins**

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|

To: Karen Mongoven[kmongoven@4cleanair.org]
From: Weinstock, Lewis
Sent: Tue 6/13/2017 12:18:13 PM
Subject: RE: MSC suggestions for Monitoring call

Karen – I am finalizing the agenda with staff this morning. Tim will be able to kick off the call with a discussion of the PM2.5 data tool and then we will carefully (verbally) walk through some of the listed topics. I'll send our final suggestions this afternoon – then we can figure out who will “prompt” each topic to get discussions rolling.

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|

From: Karen Mongoven [mailto:kmongoven@4cleanair.org]
Sent: Monday, June 12, 2017 3:58 PM
To: Weinstock, Lewis <Weinstock.Lewis@epa.gov>
Subject: RE: MSC suggestions for Monitoring call

I meant to respond to this earlier – I do hope we can keep Tim on the agenda – I think it would be a good topic. Even with the laundry list below, I'm not sure if there is anything that will take up a great amount of time.

LOL on your observation about Dirk.

The comment on suspecting you are not ready to talk about the implications of massive budget cuts was my own. ☺

From: Weinstock, Lewis [mailto:Weinstock.Lewis@epa.gov]
Sent: Monday, June 12, 2017 7:42 AM
To: Karen Mongoven
Subject: RE: MSC suggestions for Monitoring call

Well this is a heck of list. A few comments below ☺. I'll forward to folks here to gage their reaction. Might be a full call which would be nice. Perhaps we should back burner Tim's presentation for another time.

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|

From: Karen Mongoven [<mailto:kmongoven@4cleanair.org>]
Sent: Friday, June 09, 2017 3:52 PM
To: Weinstock, Lewis <Weinstock.Lewis@epa.gov>
Subject: MSC suggestions for Monitoring call

I have now heard back from a number of MSC members and they have several additional ideas for next week's Monitoring Committee Call agenda. This list is for the most part a copy-and-paste. Some of these suggestions are pretty specific and could maybe fall under a "general Q&A with EPA" if we want to make that a line item on the agenda. Thoughts on these?

1. **Impacts of the 2015 O3 NAAQS implementation delay?** We realize you (EPA monitoring group) may not be ready to describe all the impacts of that decision in the broader context, but an up to the minute conversation on what you do understand and how you will be working to completely understand and convey the impacts of this delay would be very helpful.

>This is very much up in the air but perhaps Joann Rice could describe where the process is in terms of implementation (She is the Division Implementation Coordinator). This really is an issue for a call with Scott Mathias in AQPD.

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>We are starting to push money out to the early adopters so the plan is a go (but delayed). I'll see if Laurie is ready to address with Kevin.

Dirk: "PAMS technical issues are kind of up in the air right now. EPA seems to be leaning towards recommending no Teflon in the inlet system which essentially invalidates the shootout results as well as the configurations of the systems currently specified as "acceptable". This is very problematic since many states have already ordered systems that may end up not working."

>No clue – will check with Kevin.

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>We would be happy to discuss in the context of the ongoing IG report and EPA response. EPA's [Lew's] opinion – Dirk needs to replace his cheapo internal ozonators with real calibrators that are traceable per the ozone transfer guidance. I'll be happy to respond with similar comments on the national call for other states that have low-balled their monitoring networks in this manner.

4. **Funding**: Perhaps EPA could comment on how monitoring organizations should respond if the cuts in the 103 and 105 grants proposed in the president's budget are passed by Congress. Specifically, how should the resulting network reductions resulting from these cuts be managed within the scope of the network planning process described in Part 58? (I am guessing you would rather not talk about this right now, but correct me if I'm wrong).

>The questioner is correct ☺. However if the issue was raised concerning the President's budget, then we would have to come up with some kind of response. It's a big can of worms and we don't have any coherent response or analysis at this point.

5. From Dave: "We are measuring SO2 violations around a source in Western Maryland now are wondering who else may be doing the same and how are they reporting the AQI in the affected area. We would like to use AirNow, but it is currently not set up to do that for SO2. We would also like Enviroflash alerts for SO2 to be available."

>Interesting issue – been raised before – seems more appropriate for the Airnow Steering Committee chaired by John White and Phil Dickerson.

6. This may be more appropriate for the NACAA-only part of the call, but a suggestion from George: “Maybe a quick question/discussion re: calibration of BGI tri/tetraCal flowmeters now that MesaLabs is the only commercial service/calibration option? Some agencies have said they are unhappy with the quality of Mesa calibrations, moving on to other products. If there's sufficient interest [I think I polled folks a while ago but didn't get much response], I may be able to work something out with the guy that did the firmware for the BGI flowmeters that would allow agencies to do their own calibrations on these things.”

>////////////////////////////////////

* * *

Karen K. Mongoven

Senior Staff Associate

National Association of Clean Air Agencies

444 North Capitol Street, NW, Suite 307

Washington, DC 20001

Phone: (202) 624-7864

Fax: (202) 624-7863

kmongoven@4cleanair.org

To: Karen Mongoven[kmongoven@4cleanair.org]
From: Weinstock, Lewis
Sent: Mon 6/12/2017 8:02:05 PM
Subject: RE: MSC suggestions for Monitoring call

Ok – I'll talk with Tim in the morning. I'm waiting to hear back from Joann, Kevin, and Laurie but I'm thinking we can cover the topics (except for funding) with relatively general answers.

Lewis Weinstock | Group Leader | Ambient Air Monitoring Group | Air Quality Assessment Division - Mail Code C304-06 | Office of Air Quality Planning & Standards | U.S. Environmental Protection Agency | Research Triangle Park, NC 27711 | Phone: 919-541-3661|

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[illegible]

* * *

Karen K. Mongoven

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National Association of Clean Air Agencies

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Washington, DC 20001

Phone: (202) 624-7864

Fax: (202) 624-7863

kmongoven@4cleanair.org

To: Wesson, Karen[Wesson.Karen@epa.gov]
From: Sustainable City Network
Sent: Thur 6/8/2017 12:13:09 AM
Subject: Top News: Bitter Reaction as Trump
Bails on Climate Accord

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June 7, 2017

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Bitter Reaction as Trump Bails on Climate Accord

257 U.S. Mayors Beg to Differ

By Randy Rodgers
Publisher & Executive Editor

Some of the 257 U.S. mayors, members of the Mayors National Climate Action Agenda, who recently released an open letter to President Trump to oppose his actions thus far against climate action.

The sustainability community erupted with nearly universal dismay, outrage and resolve in the face of President Donald Trump's

decision to pull the United States out of the Paris climate agreement

promise, pitting his administration against the 71 percent of U.S. citizens who believe climate change is a clear and present danger, and joining only the countries of Syria and Nicaragua in defiance of the accord, which was signed by nearly 200 nations.

The administration's official website at WhiteHouse.gov claims the Paris deal "created a taxpayer funded U.N. climate slush fund," an idea made popular by conspiracy theorists who believe the United Nations' effort to combat climate change is a veiled attempt to erode American sovereignty. Citing disputed facts about the cost in jobs and the "negligible" environmental benefits of the pact, Trump said the Paris Accord was "negotiated badly" by the Obama administration and imposed unrealistic carbon reductions on the U.S. "while giving countries like China a free pass for years to come."

In justifying his decision, Trump famously said, "I was elected to represent the citizens of Pittsburgh, not Paris." That statement ignored two important facts: 1) In the 2016 presidential election, Hillary Clinton won 75 percent of the vote in the city of Pittsburgh; and 2) Pittsburgh and Paris are actually on the same planet, which is really what the Paris Accord was all about.

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Latest News

Cities Selected for Equitable Economic Development Fellowship

WASHINGTON -- National League of Cities, PolicyLink and the Urban Land Institute announced the selection of six additional cities for pa...

APPA, National Lab to Improve Electric Reliability

WASHINGTON -- The American Public Power Association has signed a Memorandum of Understanding with the Lawrence Berkeley National Laborat...

NY to Help Farmers Cut Energy Costs and Utilize Clean Energy

ALBANY, N.Y. -- Governor Andrew Cuomo announced the release of a comprehensive strategic plan to help farms across New York State cut energy c...

DOT Announces \$527.8 Million in Infrastructure Grants to

Elaine L. Chao announced the Federal Aviation Administration will award \$527.8...

CaGBC launches Canada's first Zero Carbon Building Standard

VANCOUVER, B.C. -- The Canada Green Building Council has taken a major step toward achieving Canada's climate change commitments with the laun...

Blue Accounting to Protect Great Lakes Source Water

ANN ARBOR, Mich. -- The Great Lakes Commission recently brought together water professionals from around the Great Lakes basin to discuss regi...

Suez. Ready for the resource revolution - [Learn more at Suez-na.com](http://www.suez-na.com)

Energy Department Adds \$20 Million in Research Awards

WASHINGTON -- The U.S. Department of Energy announced it is honoring additional commitments to 10 previously selected Advanced Research ...

EPA: Atlanta Area Attains 2008 8-Hour Ozone Standard

ATLANTA -- The U.S. Environmental Protection Agency announced that it is taking final action to approve the state of Georgia's request to...

Energy Department to Fund 19 Tribal Energy Projects

WASHINGTON -- The U.S. Department of Energy Office of Indian Energy Policy and Programs announced funding for 19 Indian tribes to take t...

EPA Brownfields Cleanup Funding Announced for Earth Conservancy

WASHINGTON -- The U.S. Environmental Protection Agency selected 172 communities and organizations across the country including Earth Con...

Practice Greenhealth and ACCO Announce Partnership

WASHINGTON -- Practice Greenhealth is constantly looking for

Online Course

Lean Thinking: Process Mgmt Made Easy

Sustainable City Network and NWETC have teamed up to offer this 6-hour online course June 20-22 on the Lean process improvement system.

This course will challenge your ideas about how you think about and evaluate the work you do.

Our Lean Master

ways to enrich your experience as an organizational member. One way is by c...



Adventist Health System Receives Gallup Great Workplace Award **ACE to Improve Energy Efficiency at Federal Facilities**

ORLANDO, Fla. -- Adventist Health System has been named a 2017 Gallup Great Workplace Award winner. This marks the seventh consecutive year th
DALLAS -- Lockheed Martin has been selected for a U.S. Department of Energy contract to improve energy and water efficiency at federal...

HHS Announces Over \$70 Million in Grants to Address Applied Medical Incurs Nearly Three Megawatts of Solar **Opioid Crisis**

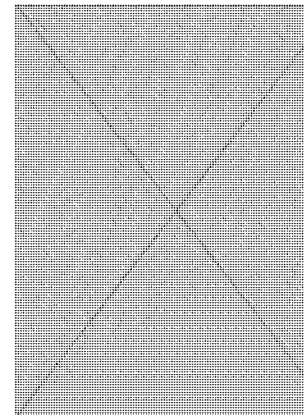
RANCHO SANTA MARGARITA, Calif. -- Applied Medical, a developer and provider of minimally invasive surgical devices, announced the completion o...
WASHINGTON -- U.S. Department of Health and Human Services Secretary Tom Price, M.D., announced the availability of more than \$70 millio...

Econolite Introduces EOS Traffic Control Software

ANAHEIM, Calif. -- Econolite recently introduced EOS traffic controller software. EOS is a next-generation, easy-to-use, web-based user interf...

Orion Lighting to Upgrade VA Hospitals to LED Lighting

MANITOWOC, Wis. -- Orion Energy Systems, a designer and manufacturer of high performance, energy-efficient LED retrofit lighting products, ann...



Vol. 23: Read it now

certified instructor,
Brion Hurley, is
principal Lean
consultant at
Rockwell Collins.
He will introduce
the history of Lean
concepts, derived
from the Toyota
Production System,

and explain how
and why they have
come full-circle
back to the United
States.

Results of Lean
initiatives have led
to increased
customer and
stakeholder
satisfaction,
reduced costs,
reduced risks,
increased sales,
and more flexible
and agile
organizations.
Perhaps the largest
benefit has been
more engaged
employees, where
people enjoy the
work they do.

Examples of Lean
successes can be
found within city
and state agencies,
utilities, nonprofits,
law firms, military,
public schools,
startup companies,
movie studios and
even farming!

[Read more...](#)

Online Course

Creating a Sustainability Strategy

Sustainable City
Network will present
a webinar series in
July for any
personnel who are
responsible for
developing
sustainability plans,
greenhouse gas
emission
inventories, climate

Sustainable City Network operates a website (www.sCityNetwork.com), customized e-newsletters, online training, conferences and other interactive tools dedicated to providing quality and timely information on sustainability products, services and best practices for government, education and healthcare.
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**Sustainable City
Network**
801 Bluff St. for a
Dubuque, IA 52001
563.588.3853
for a business or
institution.

Sent to Wesson.Karen@epa.gov. [Unsubscribe](#) | [Update Profile](#)

The 6-hour online course, Creating a Sustainability Strategy for Your Organization, will be delivered live on July 11-13. Sessions will be recorded so registrants may attend live or via on-demand streaming video.

This course, featuring veteran instructor Antonia Graham, will focus on the implementation and strategic thinking that is required to implement a Sustainability Plan. This course will teach you how to incorporate storytelling and systems thinking into a strategic plan that gets your plan implemented and enables you to move the needle further and faster to create a more sustainable community.

This course will be presented in three 2-hour sessions held on consecutive days, July 11-13. (Group rates available on the registrations page.)

Sustainable City Network operates a website (www.sCityNetwork.com), customized e-newsletters, online training, conferences and other

government, education and healthcare.
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Sent to Wesson.Karen@epa.gov. [Unsubscribe](#) | [Update Profile](#)

To: Nancy Kruger[nkruger@4cleanair.org]
From: Mathias, Scott
Sent: Wed 5/17/2017 2:39:21 PM
Subject: Re: Agenda for 5/24 CP call

Nancy,

I have forwarded your request to the Health and Environmental Impacts Division leadership to see if that's something they feel comfortable doing.

Scott Mathias | Associate Director, Air Quality Policy Division | U.S. EPA, RTP, NC 27711 | 919.541.5310

From: Nancy Kruger <nkruger@4cleanair.org>
Sent: Tuesday, May 16, 2017 10:47 AM
To: Mathias, Scott
Subject: RE: Agenda for 5/24 CP call

Thank you, Scott.

Btw, after last month's call, a member emailed me to suggest that EPA provide the NAAQS review updates in writing in advance of the call. I did not ask you for your thoughts on that because I believed I knew them. But, in fairness, I should ask. So, thoughts?

Nancy Kruger

Deputy Director

National Association of Clean Air Agencies

444 North Capitol Street, NW

Suite 307

Washington, DC 20001

tel: (202) 624-7864

fax: (202) 624-7863

nkruger@4cleanair.org

www.4cleanair.org

From: Mathias, Scott [mailto:Mathias.Scott@epa.gov]
Sent: Monday, May 15, 2017 5:29 PM
To: Nancy Kruger
Subject: RE: Agenda for 5/24 CP call

Hi Nancy,

I think this continues to be a logical and efficient roadmap for delivering the updates.

Scott Mathias | Associate Director, Air Quality Policy Division | U.S. EPA, RTP, NC 27711 | 919.541.5310

From: Nancy Kruger [mailto:nkruger@4cleanair.org]
Sent: Monday, May 15, 2017 4:07 PM
To: Mathias, Scott <Mathias.Scott@epa.gov>
Subject: Agenda for 5/24 CP call

Hi Scott,

Any changes to the usual agenda for next week?

Thanks,

-Nancy

1) NAAQS reviews – Scott Jenkins, Ambient Standards Group, Health and Environmental Impacts Division

- a. Lead
- b. Primary NO₂
- c. Primary SO₂
- d. Secondary NO₂/SO₂
- e. Particulate Matter
- f. Carbon Monoxide

2) NAAQS area designations – Scott Mathias, Associate Director, Air Quality Policy Division

3) NAAQS implementation – Megan Brachtel, Group Leader, State and Local Programs Group, Air Quality Policy Division

- a. Ozone standards (2015, 2008, 1997)
- b. PM standards (2012, 2006, 1997)
- c. Primary SO₂ standard (2010)
- d. Primary NO₂ standard (2010)
- e. Lead standard (2008)
- f. Other SIP-related issues/litigation

4) CSAPR and other interstate transport issues – Rick Haeuber, Chief, Assessment and Communications Branch, Clean Air Markets Division, and Michael Ling, Associate Director, Air Quality Policy Division

5) Exceptional events – Rhea Jones, Group Leader, Geographic Strategies Group, Air Quality Policy Division

6) Regional haze activities and actions – Rhea Jones, Group Leader, Geographic Strategies Group, Air Quality Policy Division

7) Next CP Committee call: Wednesday, June 28, 2017, 1:30-2:30 PM Eastern Time

Nancy Kruger

Deputy Director

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To: steven silverman
From: Wesson, Karen
Sent: Fri 3/3/2017 3:51:11 PM
Subject: RE: thank you!

Ex. 6

Thanks for the note! I hope you are doing well!!

Karen

-----Original Message-----

From: steven silverman [mailto:]
Sent: Thursday, March 02, 2017 11:31 PM
To: Wesson, Karen <Wesson.Karen@epa.gov>
Subject: thank you!

Ex. 6

Dear Karen,

Thanks so much for the inscribed O3 FR cover page. It means a lot to me. Please thank all who signed, and all meh other friends as well. I think of you all in these benighted times. I haven't given up hope that the new administration will defend the O3 standard — if they mean what they say about wanting clean air they have no choice.....

Best always,

Steve